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JENNER AND HIS IMPACT ON MEDICAL SCIENCE*

BY

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e are assembled here to-day to celebrate the life and work Edward Jenner, who was born in Gloucester 200 years o on May 17, 1749. We come to pay tribute to a man o discovered that vaccination protected against small-x, and thereby placed in the hands of any community ich cared to make proper use of it the means of eliminat-from their midst a deadly and disfiguring disease. The thod was effective as Jenner presented it, and all the w knowledge and technical skill that have been added in last 150 years have not changed its fundamental basis or ded much to its efficiency.

Apart from the value of vaccination in controlling or n eliminating smallpox, this discovery of Jenner's has ch wider significance. It was one of the earliest instances preventive medicine and of the public control of disease. value on the scientific side of medicine is just as impos-, for Jennerian vaccination can be regarded as the parent modern work on viruses and virus diseases and even of dern immunology. Indeed, it would be difficult to ention any discovery that has had a greater impact both public health and on medical science, and it is but right at we should pay tribute to the man who was responsible this important advance in knowledge.

So much emphasis is nowadays placed on technique and tistical approval of investigations that it is well for us take this opportunity of reminding ourselves that the first ject of research is discovery, and that such discoveries y come not only from systematic and prolonged investi-ion, involving the use of standard methods with elaborate paratus, but equally well from methods of observation l experiment of the simplest kind. Jenner himself was professional research worker but a man with exceptional wers of observation and perception, who had also the standing quality, remarkable for this period and parently innately developed, of appreciating the value of e experimental method.

There is a vast amount of information about Jenner's life. deed, it would be difficult to find anybody of that period ose actions, experiences, and thoughts were better docu-ented, and it would have been easier to centre this lecture und his history. I do not propose to do this, however, cause I am anxious to paint a broader picture of his rk and its influence on medical science. It would, how-r, be wrong to eliminate all such references, because, rly, a proper appraisal of his work must depend in part the state of knowledge at that time and on the conditions der which he was brought up and laboured. There has n a tendency to write about and discuss Jenner as if had the knowledge, outlook, and facilities of later days. ish therefore to refer briefly to some of his experiences, ecially during the formative years of his life, in order convey an idea of his training, his equipment, and the cumstances in which he made his observations.

*Lecture given at the bicentenary meeting held at the Royal College Surgeons of England on May 17.

A Brief History

Edward Jenner was the son of a country parson living in Gloucestershire, and at the age of 13 was apprenticed to a doctor with the intention of becoming an apothecary. Under Ludlow, a surgeon at Sodbury, near Bristol, he studied pharmacy and surgery. In 1769, at the age of 20, he had the good fortune to become an apprentice to John Hunter, then a surgeon at St. George's Hospital and the owner of a menagerie at Brompton, where he made his world-famous studies on the structure and habits of animals. Hunter was then 41. Hunter and Jenner dated their intimate friendship from this time and began a correspondence which only ended with Hunter's death in 1793. Hunter expected much from his assistants, but he was equally good in giving them help and opportunities for advancement. Thus, in 1771, when Captain Cook returned from his voyage to the great southern continent with a large cargo of natural history specimens, mostly collected at Botany Bay, it fell to Jenner's lot, through the influence of Hunter and of Sir Joseph Banks, then President of the Royal Society, to prepare and arrange these specimens. This he did with such skill that he was offered the appointment of naturalist to Captain Cook's next expedition, which sailed in 1772.

Other evidence of Jenner's capability is seen in the fact that Hunter also suggested that he might become his partner and give additional lectures on comparative anatomy and surgery. Both these invitations were rejected, however, and Jenner preferred to return to his native village to become a country doctor in the vales of Berkeley and Gloucester.

Throughout his life one of Jenner's main interests was natural history, and it was in 1787 that he sent his manuscript on the behaviour of young cuckoos through Hunter to the Royal Society. In this publication, it will be remembered, he showed that fledgling cuckoos heaved out of the unnatural nest in which they were born other fledglings and eggs, a murderous instinct they lost by the twelfth day after hatching. It was not only Fellows of the Royal Society who found difficulty in believing this observation, and its complete acceptance had indeed to await the arrival of the cinematograph. However, a year later, in 1788, the work was published by the Royal Society in its *Philosophical Transactions*, and Jenner was elected to the Fellowship of the Society.

While a medical student at Sodbury, Jenner heard the local traditional rumour that milkmaids who had suffered from cowpox never took smallpox. There is much evidence that he was not only intensely interested in this statement but that he brooded on it and studied the matter closely during the next twenty years. In 1796 he made the first vaccination—that of a boy—with lymph made from the vesicle on the hand of a milkmaid infected with cowpox. In 1797, when he was 47, he sent to the Royal Society for publication a record of his observations on the natural history of cowpox, and this was rejected. It is said that the refusal to publish this work was accompanied

by an admonition that "as he had gained some reputation by his former papers to the Royal Society, it was not advisable to publish this one, which would injure his established reputation." The paper, revised and extended, was published by Jenner in 1798 as a private pamphlet with the title *An Inquiry into the Causes and Effects of the Variolae Vaccinae, a Disease discovered in some of the western counties of England, particularly Gloucestershire, and known by the name of the Cow Pox.*

Jenner lived in Gloucestershire as a busy country practitioner all his life, except for a short period in 1802, when he was tempted by the importunity and promises of his friends to become a specialist in London. This was a failure, financial and otherwise, and caused a return to his own countryside after three months. It must be added that Jenner did not retain the status of an apothecary, but in 1792 took the M.D. degree of St. Andrews University and did some consulting work in Cheltenham. From the time he published his paper on smallpox in 1798 Jenner, although living a secluded life in the country, was a notorious public figure, much applauded and much criticized. He spent most of the rest of his life vaccinating people and promoting vaccination as a preventive of smallpox. He died at the age of 74.

His Association with Hunter

This, then, is a brief outline of his career. It would be wrong, however, to pass without further discussion Jenner's interest in natural history and especially his relationship to Hunter. There might appear at first sight to be nothing exceptional about Jenner's interest in nature at that time, for, as is well known, there was a tremendous outburst of activity in this field dating from the middle of the eighteenth century and probably stimulated largely by the systematization of animals and plants by Linnaeus. The literature of that period is full of works, often of a very high standard, on natural history. Most of this, however, was of an observational type, and investigations were largely directed to the classification and description of the natural life of the country, including the birds, butterflies, and flowers. But Jenner's interest in natural history was due neither to the fashion of the times nor to Hunter, for at the age of 9 he had made a collection of dormouse nests and one of fossils from the oölite.

In the long correspondence with Hunter, of which only Hunter's letters are extant, it is possible to see not only the close personal relation between these two men but also how they reacted on one another and constantly stimulated each other to further action. Most of Hunter's letters are full of requests for animals and birds of one sort or another. He asks Jenner to send him young blackbirds of different ages, crows' and magpies' nests, an old cuckoo and a nest with a cuckoo's egg in it, a live heron or bittern ("see how they make the noise!"), a porpoise, white hares (a buck and a doe) from Jenner's friends in Newfoundland, bats from the old castle at Berkeley, and fossils, more hedgehogs —"a colony of them"—and even a bustard. Besides asking for these things, he was constantly telling Jenner to do things, to send him "a true and particular account of the cuckoo and, as far as possible, under your own eye," to take temperatures of hibernating animals; and, above all, as is well known, it was in this correspondence that he told Jenner not to think but to try the experiment.

Hunter's letter of June 7, 1773 or 1774

"I thank you for your experiment on the hedgehog; but why do you ask me a question by the way of solving it? I think your solution is just; but why think? Why not try the experiment? Repeat all the experiments upon a hedgehog as soon as you receive this, and they will give you the solution . . . and let me know the result of the whole."

There were, however, some more human touches about these letters of Hunter's: for instance, when Jenner announced that he had had a severe disappointment in marriage Hunter wrote to him: "I own I was glad when I heard that you was married to a woman of fortune but let her go; never mind. I shall employ you with hedgehogs, for I do not know how far I may trust mine."

On another occasion Jenner asked Hunter to be godfather to his child. Hunter replied, accepting the office as follows: "I wish you joy; it never rains but it pours. Sooner than the brat should not be a Christian I will stand Godfather for I should be unhappy if the poor little thing should go to the Devil because I would not stand Godfather. I hope Mrs. Jenner is well and that you begin to look grave now you are a father." On the whole, however, these letters are very much to the point and concerned almost entirely with either ordering or acknowledging the receipt of natural history specimens or criticizing Jenner's experiments.

One of Jenner's great characteristics was that he seemed to make use of every opportunity that was offered to him. For instance when he met Hunter in Bath on one occasion he saw at once that Hunter was suffering from angina pectoris, which was the ultimate cause of his death. The ordinary man would have been greatly perturbed at seeing this condition in a friend but would have done nothing about it. Jenner, however, did not take this line but wrote to Heberden, who was in medical charge of Hunter, about his diagnosis, and, moreover, began to take an interest in the condition of the heart which was associated with this disease.

The result was that he made the first observation on the thickening and calcification of the coronary arteries in this disease, and, although out of a natural reticence he did not pass on this information to Hunter, he told Home Hunter's brother-in-law, of the fact. After the post-mortem examination on Hunter, Home wrote to Jenner in the following words: "It is singular that the circumstance you mentioned to me and were always afraid to touch upon with Mr. Hunter should have been a particular part of his complaint, as the coronary arteries of the heart were considerably ossified." When we remember the long period of time that elapsed before it was generally accepted that the pathological basis of angina pectoris was coronary disease, it is remarkable that this observation should have been made by Jenner at that time.

Although the records of Jenner's observations on natural history which he wrote in his notebook between 1787 and 1806 are meagre, from them it can be seen at once that he was no mere collector or casual observer of nature but a man who observed accurately and persistently and had the faculty of picking out the essential from the dross. His post-mortem records of the egg-forming organs of birds and of the abnormalities to be observed in dogs which had died of distemper show these qualities. Nor did he hesitate to put his ideas to the test, as, for instance, when he exchanged eggs and fledglings from one nest to another or when he marked birds before migration and observed the results. Where Jenner made simple observations or experiments his recorded results can be regarded as correct. When he had preconceived ideas on subjects about which there was little or no knowledge, he made mistakes in deduction, as, for instance, when he decided that tubercles in the lungs were derived from hydatids.

The general impression to be derived from these notes is that Jenner had the mental outlook and qualities of a genuine discoverer, and that it is no mere chance that he did in fact make discoveries.

Discovery of Vaccination

Probably one of the simplest ways of focusing attention on Jenner's great discovery of vaccination against smallpox, and especially upon its basis, would be to recall the criticism that has often been brought against him for having given the name variolae vaccinae to cowpox. Even the fact that he put this into Latin has caused criticism. The further charge was that, by giving such a name, he insinuated into the minds of medical men that cowpox was smallpox. He was accused of having introduced "an unblushing invention of a misleading name," that he was "wanting in the rudiments of common candour," that this was an action of sheer trickery, and that the profession were thereby mystified and hoodwinked about the true nature of cowpox. Had it turned out that the facts upon which Jenner had given this name were incorrect, these critical scholars would certainly have had some cause for rejoicing, but, as we all now know, Jenner was right on almost every practical and scientific point.

Let us first see what he himself thought on this matter when he introduced the words variolae vaccinae. He wrote: "There are certainly more forms than one (without considering the common variation between the confluent and distinct) in which the smallpox appears in what is called the natural way. It will be inquired (if the foregoing reason be *a priori* correct) in what way can the action of cowpox (or the equine pock) in preventing subsequent smallpox be reconciled with the established laws of the animal economy? My reply is, for the reasons which I have stated on the basis of fact, that they were not *bona fide* dissimilar in their nature but, on the contrary, identical. On this ground I gave my first book the title of 'An Inquiry into Causes and Effects of the Variolae Vaccinae,' a circumstance which has since been regarded by many as the happy foresight of a connexion which was destined by future evidence to become warranted."

Let us now see what modern scientific evidence has proved and what posterity has had to say about this claim of Jenner's, which in reality was the essential basis of his discovery of vaccination for smallpox. In 1902 Copeman inoculated a monkey with smallpox virus, vaccinated a calf from the monkey, and produced typical cowpox. Later Blaxall found that both alastrim (variola minor) and variola major viruses from human subjects produced a papulovesicular lesion on the skin of a monkey but not on the skins of calves or rabbits. Either of these two variola viruses protected the monkey against vaccinia and, conversely, vaccinia protected it against both of them. He then succeeded in increasing the virulence of both forms of variola virus for the calf, so that in the space of three successive passages the calf developed the typical lesions of cowpox.

Thus it was demonstrated that the biological difference which specimens of alastrim and variola viruses exhibited when removed from man disappeared when they were passed through the calf. As a control virus Blaxall used material from varicella (chicken-pox), which he found, as previous observers had done, to be without effect on the skin of the monkey or other animals. Similarly, by employing the specific test of allergy introduced by von Pirquet, he showed that the viruses of vaccinia, variola, and alastrim behaved alike but were sharply differentiated from the virus of varicella.

Later Gordon showed that vaccinia protected the monkey against other strains of mild and severe types of smallpox better than these strains of variola protected the animal against vaccinia. He further showed that the variola virus from five outbreaks, including three of the mild and two of the severe types of smallpox, reacted positively with antivaccinia serum in the complement-fixation and agglutination tests.

The Father of Modern Virus Studies

In a lecture of this kind it is possible to refer to only a trivial amount of evidence on this question, but Jenner would indeed derive much fun and satisfaction from the mass of investigation on vaccinia and variola viruses if he could visit us to-day. He would see the unassailable evidence of the truth of his observations on man in 1798 that vaccinia protected against variola. He would find that we now know more about the morphology and the biological properties of vaccinia virus than of any other virus. He would greatly appreciate modern methods of altering the type of lesions produced by vaccinia virus and of selecting different strains of virus which, although antigenically and immunologically indistinguishable, can cause under appropriate conditions cutaneous lesions, meningoencephalitis, orchitis, pneumonia, or keratitis—i.e., degrees of difference in biological action of one virus greater than those of the smallpox and cowpox virus with which he was familiar.

He would be greatly interested to learn that, in spite of all these different biological properties that can be induced in vaccinia virus and in spite of the remarkable cross-immunization properties and the closely related antigenic and immunological actions of variola and vaccinia, it is widely believed that variola and vaccinia viruses are different entities, and that the evidence that one is ever completely transformed to the other is insecure.

At this stage of my reading about pox viruses I also began to feel insecure, and decided to call in an expert bacteriologist for the latest stop-press views about the interrelation. He provided me with the following statement: "It has been generally assumed, since the days of Jenner, that vaccinia is variola modified by passage through the calf. For this there is good evidence, supported by modern experimental work. The further assumption, however, that vaccinia is the same disease as naturally occurring cowpox virus is more doubtful, since Downie has shown that vaccinia and cowpox viruses differ in their heat-labile antigens and give rise to different lesions in animals. Both viruses can, of course, protect against variola. Thus vaccinia virus is almost certainly a derivation of human smallpox virus, but cowpox virus is a naturally occurring and rather different virus belonging to a much larger group of animal pox viruses."

Jenner would be amazed to learn of the present enormous field of knowledge of other virus diseases and of the information that has been accumulated about the properties of these viruses. He might just be a little uneasy about some of the new knowledge. For instance, he might think that, from the scientific angle, it was fortunate his particular problem concerned smallpox and cowpox and not the influenza viruses A and B, which, while producing similar morbid effects in man, do not protect against each other. He would realize that he probably would not have made much headway in preventing distemper in dogs—a disease which did interest him intensely—on learning that when the virus of this disease is transmitted to ferrets the infected material from the ferret will not protect against distemper in the dog nearly so well as the dog's virus itself, in spite of the fact that the infective agent is the same in each case.

However, Jenner in fact did choose smallpox as his objective, and, in spite of the complexity of virus problems which now face the scientific world, some due to their innate properties and some to the various species of animals and the different tissues in which their biological reactions have been studied, he would have the supreme satisfaction of realizing that he started all this work, that his views on

the relationship of smallpox and vaccinia have been generally confirmed, and that indeed he can well be regarded as the father of modern virus studies and of the biological and pathological reactions they produce.

Official Approval

So far as the subsequent history of vaccination is concerned, I shall simply recall that Jenner's triumph was great when the National Vaccine Board, consisting of the President and four Censors of the Royal College of Physicians and the Master and two Governors of the Royal College of Surgeons, was set up in 1808 by the Government. The immediate stimulus to this action was the report of the Royal College of Physicians, published in 1807, which concluded with the following words:

"The College of Physicians feel it their duty to strongly recommend the practice of vaccination. They have been led to this conclusion by no preconceived opinion, but by the most unbiased judgment, formed from an irresistible weight of evidence which has been laid before them. For when the number, the respectability, the disinterestedness and the extensive experience of its advocates are compared with the feeble and imperfect testimonies of its few opposers; and when it is considered that many, who were once adverse to vaccination have been convinced by further trials, and are now to be ranked among its warmest supporters, the truth seems to be established as firmly as the nature of such a question admits; so that the College of Physicians conceive that the public may reasonably look forward with some degree of hope to the time when all opposition shall cease, and the general concurrence of mankind shall at length be able to put an end to the ravages at least, if not to the existence, of the smallpox."

In the light of this edict it is strange that variolation—namely, the inoculation of smallpox material as a prophylactic against the disease—which had been practised in the East from time immemorial and introduced into England largely owing to the influence of Lady Mary Wortley Montagu about 1722, continued to be practised in England until it was made a penal offence by the Vaccination Act of 1840. The long continuation of inoculation for smallpox for a period of over 30 years after the official acceptance of vaccination is an example of official inertia, especially in view of the truth and force of Jenner's arguments that it was a more dangerous procedure to the individual than vaccination, and that it allowed the continuation of smallpox itself throughout the community. However, in most ways vaccination had a rapid and world-wide acceptance.

Influence of Jenner's Discoveries

When we turn to the wider question of the influence of Jenner's discoveries on epidemiological and scientific advance of knowledge we find a different and more depressing picture which, because of its ultimate great triumph, makes us realize more fully how long before its time, from a scientific angle, Jenner's discovery was made. For 80 years, apart from smallpox itself, Jenner's work was without influence in the wider field of protection against infective and infectious disease. In 1877, however, the scene was changed, for it was in that year that Pasteur, whose reputation was already very high because of his work on fermentation and infection of plant life, turned his attention to human and animal disease.

There is no doubt that when he began to investigate anthrax and other diseases he studied closely the literature of immunity to smallpox following variolation and Jenner vaccination, and that it was Jenner's work which primarily caused him to think that a similar state of affairs might hold for other diseases; the first malady he studied from this angle was chicken cholera. It will be remembered that in 1881 he gave an address in London at the International Medical Congress on vaccination in relation to chicken cholera and splenic fever. It was on this occasion that he explained his adoption of the words "vaccine" and "vaccination" to denote the process of prophylactic inoculation in general and expressed his indebtedness to Jenner's work in the following words:

"I cannot complete this address, however, without testifying the great pleasure I feel that it is as a member of an international medical congress meeting in England that I find communicate to you the vaccination of a disease probably more terrible for domestic animals than smallpox for man. I have given to the term vaccination an extension which science, I hope, will consecrate as a homage to the merit of and to the immense services rendered by one of the greatest of English men, your Jenner. I am indeed happy to be able to praise the immortal name in the noble and hospitable city of London."

It may not be without interest to mention that the president of this congress, the late Sir James Paget, in thanking Pasteur for his address, pointed out that what Jenner had done for the good of the human race Pasteur had done for the good of animals, but, whereas Jenner had had to fight his battle for the benefit of men's lives against a vehement opposition, Pasteur had met with no such opposition in his work for the benefit of cattle. We still meet with this kind of relative reaction—an indication that human nature has not changed very much in the last 150 years.

Pasteur follows Jenner

In developing a treatment for fowl cholera Pasteur followed Jenner in first producing enfeeblement of the virus which he called attenuation. As in the case of smallpox he noticed that if fowls recovered from the effects of inoculation of the virus the disease was not likely to recur, and that if relapses did occur they were in inverse ratio to the severity of the first attack. If the virus was transplanted from medium to medium at intervals varying from day to a month or two, no change was observed in the virulence for fowls. If, however, the interval was prolonged to three, four, or five months the cultures became less and less virulent and the fowls, even if they fell ill, recovered and if they were now injected with a virulent cholera culture they survived the injection. By this means he discovered prophylaxis of fowl cholera by attenuated virus, a principle which he also established for anthrax, swine erysipelas, and rabies.

In the case of anthrax he noticed that domestic animals occasionally recovered from the disease, which suggested that they developed natural immunity. He observed that the anthrax bacillus did not grow at 45° C. but grew well at 42–43° C. At the latter temperature, however, the culture became asporogenous and died out altogether in a month. When a virulent anthrax culture was kept at a temperature of 42–43° C. for eight days it was found to have lost much of its potency and was innocuous when injected into guinea-pigs, rabbits, and sheep.

Pasteur then proceeded to give a public demonstration of this work on 24 sheep, 6 cows, and 1 goat. On May 5, 1881, these animals were each inoculated with a living attenuated culture of anthrax bacilli. On May 17 the animals were reinoculated with a less-attenuated culture. On May 31 all 31 animals received a highly virulent anthrax culture, which was also inoculated into 24 sheep, 1 goat, and 4 cows not previously inoculated and serving as controls. On June 2 all the vaccinated animals were well, 21 of the control sheep and the goat were dead from anthrax, 2 of the control sheep dying in the presence of the spectators, which included a correspondent of *The Times*. The result of this test created an enormous sensation, and from this time immunology may be regarded as having been established. Pasteur himself said of this work that it was "un progrès sensible sur le vaccin Jennerien."

In this final phase of his work Pasteur, although a cripple following a cerebral haemorrhage, but mentally as alert

as ever, turned his attention to rabies. Making use of the fact discovered by Galtier in 1881 that rabies was transmissible to rabbits, he first showed with Chamberland and Roux that the virus of rabies entered the central nervous system. His next key observation was that spontaneous recovery very occasionally happened in dogs, and in five such dogs he found that subsequent intracerebral inoculations were without effect. Here again he had a disease with an immunity factor and with a virus transmissible to animals and therefore with a basic similarity to smallpox and anthrax. Clearly the principle of attenuation of the virus was presented.

As is well known, he proceeded on the one hand to exalt the activity of the virus by passage through rabbits, and on the other hand to attenuate its activity by suspending infected spinal cords in dry, sterile, and still air. After inoculation of emulsions of the attenuated cord he found it possible to inject emulsions of less-attenuated cord, and finally emulsions of the most powerfully active virus, with impunity. In 1885 he extended these observations to human beings, when he treated a boy aged 9 who was brought to him suffering from extensive bites inflicted by a dog with rabies. The boy was first injected with attenuated rabbit spinal cord which had been kept for 14 days. In a further series of 12 injections he received virus that was stronger and stronger until he was injected with the most virulent spinal cord, which had been taken from the rabbit after one day only. This boy remained well. That was the beginning of the modern method of treating this disease.

I have given this brief summary of Pasteur's work on the production of immunity on the basis of attenuation of virus because it seems to me that Pasteur's public recognition of Jenner's influence on his great work should be widely recognized. The same basic principles underlying Pasteur's remarkable discoveries are obviously present in Jenner's work on vaccination and smallpox. In all the diseases studied by Pasteur, as in Jenner's discovery, there was evidence of the invasion of the animal body by a virus (using the word in its older sense), and of the animal's power to build up a natural resistance to the disease, and the problem in each case was to find or produce a virus in an attenuated form which on injection promoted immunity to the fully virulent agent. The subsequent development of the whole subject of immunology since Pasteur's day has of course been enormous, not only in what are now known as virus diseases but also in diseases due to other types of pathogenic micro-organisms. Should we therefore be far wrong if we extended the suggestion previously made that Jenner was the father of modern work on virus disease to the proposition that he might also well be regarded as the father of the whole domain of immunology?

Unjust Criticism

So far I have refrained from discussing the personal qualities of Jenner, except to say that his mental characteristics were clearly those of a potential discoverer; I have been content to deal with his experiences, his work and its results, and allowed them to speak for themselves. It is impossible, however, to read the extensive literature about Jenner without finding that he has been subject to more than his share of criticism and even of defamation, in regard to both his work and his character. This criticism has come not only from ignorant people with strong views about vaccination but also from some who would be regarded as scholars of medicine. In other words, into this literature scholasticism has entered.

We have been fortunate in medical science in having had only a minimum of the kind of writing which was such a prominent feature in theological studies of the Middle Ages. One of Jenner's critics who has been described by Greenwood as "an exact scholar and a highly educated man" and by W. Bullock as "a scholar and philosopher—the most learned man I ever knew," in the course of what has been described as an exposure of Jenner wrote about him as follows: "They would probably have found Jenner to be the vain, imaginative, loose-thinking person that he certainly was by nature, and they might have so acted as to prevent him from becoming the impostor and shuffler that the course of events made him."

If this accusation stood alone it might well be disregarded, but I find that my friend Greenwood fully accepts the statement as regards Jenner being "vain, imaginative, and loose-thinking," though he suggests that the words "impostor and shuffler" in the second part of the sentence might be replaced by the description "fact-blinded enthusiast." In my view these judgments are not only imbalanced but wrong, and could have been made only by those who have little knowledge of and make but little allowance for human nature. We all know instances of writers of this type, and I want to take this opportunity of saying that it will be a sad day for medical science if such writing becomes a prominent feature, for there is but little room in scientific work for this sort of scholasticism. "Killing Kruger with your mouth" is at any time a poor game and in scientific work has no place. This was well recognized by the Royal Society when they adopted the motto "Nullius in Verba."

If a man thinks that the facts described by an investigator are wrong, then it is no good simply writing about them. The critic must go into the hospital or laboratory and make better observations or better experiments in order to prove his contention. The test of the acceptability of a discovery depends upon whether it is true and not whether it seems sensible or even whether it can be verified by the statistician. Most of Jenner's deductions from his work proved to be true. A few of his observations, such as, for instance, that a condition called "grease," a disease of the heels of horses, is the initial source of cowpox, have, I believe, proved to be untrue (although he was right in believing that there is a pox disease of horses), and occasionally his deductions, especially those concerning the infallibility of the protecting influence of vaccination against smallpox, were exaggerated, but this kind of defect will be found in the works of most scientific investigators, and the more fundamental their discoveries in medicine and biology the more likely are they to make mistakes at some time or other.

Speaking on the basis of my own experience in medical research, it seems to me that most facts published by scientific men are true but that they are apt to make two types of error, especially in the early accounts of their work. The first is that they sometimes forget that their results are true only for the conditions under which they are working, and the second is that they are apt to make unwarranted deductions regarding the implications of their results. In the latter case these often prove to be wrong. As regards the first source of error, it is clearly the object of the critic, if he once finds that the first man's results no longer hold, to search out the conditions which may have modified the earlier results. This is the normal method of procedure in research, and nearly always leads to new knowledge.

If, on the other hand, a man is to be condemned and denigrated because the implications of some discovery prove to be unsound, then I can only say that very few scientific men, even of the finest type, will have a shred of reputation left when they have been handsomely dealt with by our scholars. No part of a man's work in biological and medical science is more difficult than that of foreseeing the implications of a new fact which opens up a new

branch of knowledge, for, unlike research in the physical sciences, it is often impossible to realize the complexity of the conditions or to prejudge the relative importance of the factors concerned.

When the critic goes further and extends his criticism from the man's experimental work to his character and to his motives the position becomes intolerable, and it is this feature of the criticisms of Jenner which induced me to make this protest. I have read a good deal about the life and the work of Jenner in the last few days, and I find that the judgments of the above-mentioned scholars on this man are just incredible. My views about Jenner as an investigator can be seen from what I have said, and I think I should add that my judgment about his character is that he was a fine type of man. The whole of his life's history seems to me to point to this: his desire to avoid the scurry and publicity of life, his kindness to his family and relations, the time and trouble he took over his patients, his readiness to participate in the local life of his village community, his interest and participation in the arts, including poetry and music, his social relations with his fellow doctors, as judged by the local medical societies he formed—all indicate a man who both appreciated the best things in life and wished to help to the utmost his fellow-man. Independently of any of his discoveries and their results, he could be regarded as the best type of country doctor.

Outstanding and Successful Pioneer

It is, however, the man in relation to his discoveries whom we celebrate to-day, and I have tried to picture one who was bound to make discoveries wherever he was placed and who deliberately chose the circumstances where in fact he made the greatest of discoveries. This not only gave direct control of one of the most devastating of diseases but it also formed the basis of all modern work on immunology and of the fruitful field of virus disease.

Apart from Jenner's distinction, may I add how proper it seems to me that the Royal College of Surgeons and the Royal College of Physicians should participate in this celebration to-day, even if it serves only as a counterblast to the constant reiteration of public men in Parliament, in the Press, and on the radio that scientific research has as its main object the discovery of weapons and machinery for the destruction of man. All public attention seems to be given nowadays to this point of view, and it is useful to take the opportunity, such as is afforded to-day, of reminding the world that there is at least one branch of science which is wholly directed to the good of man, to the cure and elimination of disease and the prevention of untimely death. Up to the present, even if war is taken as a criterion, medical science in its work for the protection of man against disease and for his defence against injury has nothing to fear from comparison with that prostitution of the physical sciences which has been concerned with the production of methods of destruction.

In this beneficial work we proudly proclaim Jenner as an outstanding and successful pioneer.

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TUBERCULOSIS IN INDUSTRY: AN EPIDEMIOLOGICAL STUDY*

PRELIMINARY REPORT

BY

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During the last 100 years information about death rates in various industries has steadily accumulated, and it is now clear that certain trades are constantly associated with high tuberculosis mortality. In some cases the exceptional findings are due to a specific industrial hazard, such as silicosis, but in others no causal factors have yet been isolated. A typical example of the latter is the shoe trade and, although the disease incidence is even higher in other occupations (Registrar-General's Decennial Supplement, 1890–1932), this has been selected for the first of a series of investigations into tuberculosis in industry.

So far working arrangements have been studied only in boot and shoe factories, but there are several reasons for believing that similar conditions prevail elsewhere, and that a systematic examination of other occupational groups will eventually reveal results very much like those which have been discovered during the course of this investigation. Meanwhile a brief account of the findings up to date may serve as a general introduction to the subject.

Present Investigation

The first indication that pulmonary tuberculosis was unduly prevalent in the shoemaking industry of this country was given in 1892, when the Registrar-General showed that the death rate among boot and shoe workers was nearly twice as great as the average for all occupied and retired males. Again, in 1902 and 1912 the Occupational Mortality returns for England and Wales showed a similar excess, and one of the first actions of the newly formed Medical Research Committee (forerunner of the present Medical Research Council) was to appoint a group of workers to investigate the industry.

In the M.R.C. report (1915) the investigators gave a detailed account of the manufacturing processes and described the general working arrangements in factories. They were satisfied that there was more pulmonary tuberculosis among boot and shoe factory operatives than in the rest of the population, and came to the conclusion that "the individual worker is predisposed to infection by the sedentary nature of his employment and possibly by the attitude he adopts at work." It was also suggested that "infection might be favoured by want of light, the presence of infected dust, and inadequate ventilation in the workrooms," but no attempt was made to produce any experimental or statistical evidence in support of these contentions.

Subsequently, despite the fact that the Registrar-General continued to report a high mortality, no further interest seems to have been taken in the subject until 1946, when

*Interim Report of an investigation initiated by representatives of the boot and shoe industry and public health authorities in Northamptonshire. The investigation, which is being financed by the Medical Research Council, is still incomplete.

†With a grant from the Medical Research Council.

finding of the first Miniature Mass Radiography Survey Northamptonshire once again drew attention to the prevalence of the disease among men and women employed in boot and shoe factories (Smith, 1947). On this occasion was possible to make a direct comparison between shoemakers and other factory workers in the county, and it was found that, "compared with all other occupations, there was statistically significant excess of newly discovered cases of active pulmonary tuberculosis in the boot and shoe industry."

The present investigation was a direct outcome of this survey and was undertaken at the request of the industry in order to discover whether the high rate of infection among boot and shoe operatives could be traced to working conditions or whether it is due to factors outside the control of the industry. Most of the work has been done in Northamptonshire, where shoemaking has long been the staple industry and where at present over one-third of the factory population is employed in this industry; but the section on general physique includes men from the neighbouring county of Leicestershire. The first part of the paper deals with recruitment into the boot and shoe industry, and shows how shoemakers as a whole compare with other workers in respect of their general physique and home environment. The second part relates to findings within the shoe trade, and shows how infection is transmitted from carriers to other workers.

I. Selective Recruitment into the Boot and Shoe Industry

It has often been argued that, because shoemaking provides a light occupation for men and, like old-established industries, is essentially a family trade, a vicious circle has been established which is alone sufficient to account for the high incidence of pulmonary tuberculosis amongst its working population. The argument runs as follows: in the first place, the nature of the work attracts men of poor physique, some of whom are suffering from chronic phthisis; these carriers, by propagating the disease in their homes, pass it on to their wives and children, many of whom, by reason of strong family tradition, become shoemakers and thus replenish the pool of infection.

Before the present investigation was begun no one had attempted to confirm or refute this theory, and even the suggestion that shoemaking was more of a family occupation than other trades was based largely on conjecture. Therefore, before embarking on a detailed study of factory conditions, an attempt was made to discover, first, whether an unusually high proportion of men with tuberculosis and/or low physique are recruited into the industry; secondly, how strong is the family tradition in the trade; and, thirdly, to what extent these factors are responsible for the high incidence of pulmonary tuberculosis among boot and shoe factory operatives.

Fitness for Military Service.—During the war years the Ministry of Labour and National Service instituted a scheme for examining men called up under the National Service Acts in order that they might be classified according to their fitness or otherwise for military service. The actual examinations were carried out by regional medical boards, who were responsible for placing men in four medical grades—namely, Grade I—fit for all forms of active service. Grade II—fit for active service but not for duties involving heavy strain. Grade III—unfit for active service: possible reservists. Grade IV—unfit for active service: rejected outright. Realizing that these records might contain valuable data relating to general physique of shoemakers, two batches of case sheets were inspected. The first referred to 22,620 men examined by one medical board in Northamptonshire, and the second to 33,350 men examined by two similar boards in Leicestershire. Both sets of records had been filed in chronological order, and a convenient sample from each batch was obtained by taking consecutive case sheets of men employed in boot and shoe factories and pairing them with alternate records for men from other trades. The first sample comprised 2,785 Northamptonshire shoemakers and an equal number of controls, and the second comprised 1,635 Leicestershire shoemakers and 1,635 other men. When these records were inspected it was discovered that in each sample there was a slight but statistically significant difference between the medical grading of the two groups, the controls being more robust than the shoemakers (see Table I).

TABLE I.—*General Physique of Men called up for National Service during 1942–3. Comparison of Boot and Shoe Operatives with Other Workers*

Region	Occupation	Medical Grade I	Medical Grade II	Medical Grade III	Medical Grade IV	No. Examined
		%	%	%	%	
Northampton-shire	Boot and shoe	66	18	8	8	2,785
	Other	74	14	6	6	2,785
Leicestershire	Boot and shoe	58	21	10	11	1,635
	Other	70	14	6	10	1,635
Both counties	Boot and shoe	63	19	9	9	4,420
	Other	73	14	6	7	4,420

Northamptonshire Miniature Mass Radiography Survey (1945–6).—Most of the men examined by the regional medical boards of the Ministry of Labour and National Service were under 40 years of age. In order, therefore, to obtain a more representative sample of shoemakers to compare with other workers the records of men examined by the Northamptonshire Mass Radiography Unit during 1945–6 were inspected. Apart from the high incidence of active pulmonary tuberculosis already reported by Smith (1947), there was nothing in these records to suggest that either heart disease or lung disease other than tuberculosis is more frequent among shoemakers than among other factory workers, and there was no evidence from the *x*-ray findings to suggest that leather dust causes pulmonary fibrosis. On the other hand, besides the "newly discovered cases of active pulmonary tuberculosis" mentioned in Smith's report there were several men who had already been notified, most of whom were found to be working in boot and shoe factories.

Family History of Shoemakers.—In order to discover to what extent shoemaking is a family trade, a sample of the Northamptonshire boot and shoe factory population and a control group of workers in other factories were asked about the occupation of their immediate relatives. The sample of boot and shoe workers comprised 1,233 persons from factories in various parts of the country, and the control group consisted of 1,027 workers from other factories in the same towns and villages. Each worker was also asked to state whether he or she knew of any near relative having had tuberculosis. In the boot and shoe sample over 90% of the workers who were interviewed stated that they had a near relative in the same trade, whilst in the sample taken from other industries over half had no family association with the trade in which they were employed. There were also a few more home contacts with tuberculosis among the shoemakers than among the other workers, so it is possible that the disease incidence in the shoe trade has been slightly augmented by passage of the disease through successive generations of workers.

Summary.—From the foregoing account it is evident that there are rather more tuberculosis carriers and men of subnormal physique in the shoe industry than in most occupations. There also seems to be some indication that shoemakers in Northamptonshire, being more often interrelated than other factory workers in this area, are more frequently exposed to infection in their homes. Since shoemaking in other parts of the country also tends to be an old-established industry the family tradition so clearly demonstrated in Northamptonshire probably exists elsewhere.

II. Spread of Infection in Boot and Shoe Factories

Early in the present investigation it was decided that if infection was *not* being transmitted during working hours it should be possible to demonstrate a disease pattern in the boot and shoe working population which was dependent

solely on *home conditions*. On the other hand, if carriers of the disease were infecting *fellow workers* the disease incidence should be related to *factory conditions*.

Smith had already shown that, according to the results of the first survey of the Northamptonshire Mass Radiography Unit, the rate of infection in certain occupational groups was higher than in others. Since this finding suggested the possibility that working conditions might be contributing to spread of the disease, it was decided in the first instance to make a more detailed study of the mass radiography findings.

Between March, 1945, and Jan. 1, 1947, the Northamptonshire Mass Radiography Unit visited 162 boot and shoe factories and examined 15,911 skilled factory operatives, or 70% of the working population.* They also discovered 101 new cases of pulmonary tuberculosis, which represents an overall rate of 0.6% of the workers who were examined.

The number of newly infected persons in any one factory ranged from 0 to 14.3%, but since most of the factories employed fewer than 100 workers it was impossible to draw

TABLE II.—*Incidence of Pulmonary Tuberculosis in Large and Small Boot and Shoe Factories (Mass Radiography)*

Group	Size of Factory (Working Population)	No. Examined (Mass Radiography)	Cases of Tuberculosis	Pulmonary Tuberculosis Rate per 1,000
1	1–100	2,934	9	3·1
2	101–200	3,811	20	5·2
3	201–350	3,522	22	6·2
4	351–600	2,580	19	7·4
5	Over 600	3,064	31	10·1
	Total ..	15,911	101	6·3

any conclusion from the experience of individual firms. When, however, factories of different sizes were compared it was found that the overall rate of infection was considerably higher in large factories than in small ones. This is clearly shown in Table II, in which the factories have been classified according to the number of persons employed.

According to this arbitrary arrangement the overall incidence of pulmonary tuberculosis in factories employing more than 600 workers (group 5) was over three times as great as in factories with fewer than 100 employees (group 1), factories of intermediate size showing a steady gradation between these two extremes.

Before deciding that this remarkable relationship was due to any fault in the working arrangements of large factories the following alternative possibilities were considered.

Age and Sex of Workers.—According to the records of the Mass Radiography Unit the age and sex constitution of each factory group shown in Table II was remarkably constant. Hence the greater incidence of pulmonary tuberculosis in large factories (which was found to apply to both sexes) was unlikely to be due to more "susceptible" persons in these factories.

Occupation.—Since boot and shoe factories are equipped with a uniform type of machinery and tend to relegate the same proportion of workers to each process, it was unlikely that the uneven distribution of infection was due to certain factories having unusual working arrangements. Such an explanation became quite untenable when it was found that the difference between large and small factories applied to every shoemaking occupation.

Regional Distribution of Large and Small Factories.—There were no factories with more than 600 employees in country districts, so that it was possible that the higher rate of infection in larger factories was due to differences between urban and rural populations. There was, however, a sufficiently large number of small and medium-sized factories in both regions to show that, whether the factories were in towns or villages the rate of infection was largely determined by the number of workers.

Factory Conditions.—The next discovery was that the disease incidence bore no relation to at least one estimate of working conditions in the factories. This particular estimate was made by regional representatives of H.M. Inspector of Factories, who visited 114 boot and shoe factories in Northamptonshire during 1945 and compiled a detailed set of records for the Working Party which had been appointed by the Board of Trade to report on the industry. The work was done by trained inspectors, who made systematic notes about the lighting, ventilation, method of dust extraction, sanitation, spacing of workers, cleanliness, and general working arrangements in each factory. On the basis of these notes the working conditions in each factory were graded as "good," "average," or "unsatisfactory." According to this assessment 24% of the factories with fewer than 200 operatives were thought to provide unsatisfactory working conditions, whilst in all the factories with more than 600 operatives the working conditions were well above the average. In these same factories the incidence of pulmonary tuberculosis, as discovered by the Mass Radiography Unit, was over four times as great in the large factories with "good" conditions of work as in the small factories, where the general layout was so much less "satisfactory." There remained one obvious difference between large and small factories which might account for the higher rate of infection in larger factories—namely, the greater number of persons in any one workshop. At first sight the more spacious rooms in large boot and shoe factories look more attractive and seem to offer better working conditions than rooms in small factories, which by comparison often seem dark and dingy. On the other hand, since infectious diseases usually spread more rapidly in large than in small communities, it was decided to explore the relation between number of workers per room and the incidence of pulmonary tuberculosis.

Size of Working Units in Large and Small Factories.—When the factories were arranged according to the average number of operatives per room a close correspondence between the overall working population and the size of the working units within the factories was found to exist. Thus, over 80% of the factories with fewer than 100 workers had fewer than 3 operatives per room, and all the factories with more than 600 workers had more than 60 operatives per room. It follows, therefore, that there is a close association between the incidence of pulmonary tuberculosis and the size of working units. (See Table III.)

TABLE III.—*Incidence of Pulmonary Tuberculosis in Boot and Shoe Factories with Large and Small Workshops*

Workshops		Mass Radiography Survey		Pulmonary Tuberculosis Rate per 1,000
Workers per Room	Floor Area per Worker (sq. ft.)	No. Examined	Cases of Pulmonary Tuberculosis	
1–20	115 (10·7 m.²)	3,474	10	2·9
21–30	91 (8·5 m.²)	2,278	11	4·8
31–40	84 (7·8 m.²)	2,763	14	5·1
41–60	82 (7·6 m.²)	3,266	24	7·3
61–80	101 (9·4 m.²)	2,205	21	9·5
Over 80	95 (8·8 m.²)	1,925	21	10·4
Total	96 (8·9 m.²)	15,911	101	6·3

More statistical work will have to be done before we can be sure that this is the fundamental cause of the high rate of infection in large factories. But the findings suggest that under conditions which prevail in boot and shoe factories

*The published report of the medical officer of health for Northamptonshire, already referred to in the first part of this paper, covered the period March 1, 1945, to June 30, 1946, by which time 153 boot and shoe factories and 17 subsidiary factories (heel-making, closing, etc.) had been visited. In the following account all workers in subsidiary factories as well as the office staff of boot and shoe factories have been excluded, and the findings refer only to *skilled operatives in boot and shoe factories*.

*In very small factories the space allotted to individual workers is usually greater than in larger factories, but where there are more than 20 persons per room the floor space per worker remains fairly constant. A more detailed study of the relation between floor area and workers per room is at present under consideration, and results will be published later.

eratives often become infected during working hours, nd that in factories with large workshops carriers have ctually caused local epidemics of tuberculosis.

Since there also seems to be some relation between rate f infection and factory size in the clothing industry (see able IV) it is likely that the high death rate from pulmonary

ABLE IV.—*Incidence of Pulmonary Tuberculosis in Large and Small Clothing Factories*

Factory Size (Working Population)	No. Examined (Mass Radiography)		Pulmonary Tuberculosis (Rate per 1,000)	
	Males	Females	Males	Females
-00	103	636	—	4·7
01-500	60	810	—	6·2
ver 500	166	1,312	—	9·2
Total	329	2,758	—	7·3

uberculosis in other occupational groups (Registrar-eneral's Decennial Supplements, 1890–1932) is also due o spread of infection from carriers to fellow workers, and at there is nothing fundamentally different between the orking arrangements in boot and shoe factories and those other industrial communities. There can also be no oubt that mass radiography statistics contain valuable aterial for studying disease incidence in various occupa-onal groups and that there is an urgent need for a more etailed study of these records.

Summary

An investigation has been made in Northamptonshire in hich mass radiography records and other statistics have been plored. The investigation is still incomplete, but the findings date suggest that the death rate from pulmonary tuberculosis the shoe industry, which is high compared with all occupied d retired males but not much higher than other industrial mmunities, is due partly to selective recruitment and partly working conditions.

There seem to be three aspects to selective recruitment: st, boot and shoe factories employ more men with hronic pulmonary tuberculosis than most other trades; condly, the physique of the men is slightly subnormal; and, irdly, there is a strong family tradition in the shoe trade, so at the workers are often interrelated.

There is no evidence of a specific industrial hazard in boot nd shoe factories, and the death rate for diseases other than uberculosis is below average.

Although workers with poor physique and chronic tuber-ulosis are found throughout the shoe industry, the incidence f active tuberculosis is not uniformly distributed, men and omen employed in factories with large workshops contracting e disease more often than those who work in factories with all workshops.

In the clothing industry there is also more pulmonary tuber-ulosis in large factories than in small ones, so that it may t be shown that size of working unit is an important factor in termining disease incidence in any occupation.

We are deeply indebted to Dr. Smith, medical officer of health for orthamptonshire, who was chiefly responsible for initiating the vestigation and who allowed us free access to the records of the orthampton Mass Radiography Unit; also to the Incorporated derated Associations of Boot and Shoe Manufacturers, the National nion of Boot and Shoe Operatives, the British Boot and Shoe and lied Trades Research Association, H.M. Inspector of Factories, d owners of individual boot and shoe factories, who have provided with invaluable assistance at every stage of the investigation.

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SOME ASPECTS OF PARTIAL GASTRECTOMY

BY

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Although a number of series containing several hundred cases of partial gastrectomy have been reported in detail from time to time in this country there are still some points which worry the occasional gastrectomist and about which gastric experts differ—points that have only been lightly touched upon. In the hope of understanding certain things more fully I have reviewed my own cases again recently, but the truth is very elusive.

The material under review is the first 200 consecutive cases of my own upon which a partial gastrectomy has been performed for a peptic ulcer at St. Bartholomew's or Hill End Hospitals. The first was in 1936 and the last at the end of 1947. The number is not large, but the cases have been carefully considered. They were not treated and operated on in any special wards or gastric clinic, but were simply included in the ordinary run of cases in a general surgical ward of a teaching hospital. The sex incidence is shown in Table I.

TABLE I.—*Sex Incidence*

	Males	Females	Total
Duodenal ulcer ..	99	8	107
Gastric ulcer	55	28	83
Anastomotic ulcer ..	9	1	10
Total	163	37	200

The proportion of duodenal to gastric ulcers is not nearly so high as in some reported series, probably owing to the fact that the former were not so readily accepted for operation, and certainly not until medical treatment had been given a very fair trial. The average age of the patients at the time of operation is shown in Table II. The youngest was a girl of 16 with a very tough adherent duodenal ulcer of seven years' standing which had resisted several courses of strict medical treatment. The oldest was a man of 69 with a duodenal ulcer.

TABLE II.—*Average Age of Patients*

	Males	Females
Duodenal ulcer	44 years	36 years
Gastric ulcer	48 ,,	49 ,,
Anastomotic ulcer	45 ,,	25 ,, *

* One case only.

Twenty years ago the position of partial gastrectomy as a treatment for gastric ulcer was not fully recognized; ten years ago the same applied to duodenal ulcer. The operation is now fully acknowledged by physicians as well as surgeons, but it is still uncertain whether it will be replaced, at any rate for duodenal ulcer, by vagotomy before the true and whole cause of peptic ulceration is revealed and operations finally give way to a certain and easy cure by some balm, wave, atom, or other undreamed-of agent.

In an endeavour to obtain the best results from a procedure such as partial gastrectomy attention must primarily be given to the causes of post-operative mortality, and, secondly, to planning of the operation so that the type of gastrectomy chosen is that which will give the best results after weeks, months, and years. This paper is devoted to these two aspects of partial gastrectomy.

Cause of Death

In 1935 an investigation of post-mortem findings after partial gastrectomy (Payne, 1936) showed that the commonest causes of death in order of frequency were: general peritonitis, including infection around the duodenal stump; pulmonary infection; shock; and haemorrhage.

It is interesting to note that the causes of death after partial gastrectomy are still very similar. In three series of gastrectomies for peptic ulcer published in this country in 1948, giving details of 1,068 cases in which the operations had been done within the last ten years, the causes of death in order of frequency were: pulmonary infections; peritonitis from leakage; uraemia; embolus; and haemorrhage. It is worth while analysing each of these causes of death in turn and the steps taken to guard against them. In my present series, in which there was only one death (mortality 0.5%), every effort was made to guard against a fatality.

Pulmonary Infections

This was the commonest and most serious complication in the series. At least 20% of the cases had some degree of atelectasis after the operation and there was usually some superadded infection. In the earlier cases the diagnosis of atelectasis was rarely made, but I feel sure that this was because the condition was not so well appreciated or so carefully looked for. This applies to many conditions in medicine which appear to be occurring more commonly but are really only being recognized more frequently.

The treatment of atelectasis with infection can be divided into prophylaxis and treatment of the established condition. Under the former heading may be mentioned careful training in correct breathing, abstention from smoking, and treatment of any cough or bronchitis. The treatment of an atelectasis is to remove the plug of mucus which is obstructing the bronchus. Deep breathing, whether produced by inhalation of carbon dioxide or done by the patient's own efforts, is not nearly so good, either theoretically or in practice, as coughing. It tends to suck the mucus further in rather than push it out. With a high abdominal incision a patient does not readily cough; but a good nurse or physiotherapist can assist enormously by persuading and helping him to cough up a quantity of thick mucus which, if the patient was left to himself, would otherwise remain for days, acting as a bung. If one is fortunate enough to have the services of a physiotherapist skilled in pummelling the chest, so much the better, for this is a most valuable procedure in loosening the mucus plug before coughing it up. These simple procedures are often overlooked.

If the patient cannot or will not cough he can be made to do so most violently by the injection of 4 ml. of nikethamide intravenously: this should be combined with a few millilitres of thiopentone—enough to make him drowsy so that coughing will not hurt him too much. We have carried this out in only two cases in the present series, with satisfactory results so far as the lungs were concerned, but in the second case the great violence of the coughing produced a hernia through the midline incision, which was repaired at a later date. Aspiration of the mucus plug can be carried out through a bronchoscope; but this is not often called for, and was done only three times in this series.

The infection which so often follows atelectasis is dealt with by sulphonamides and penicillin. Seven years ago during the whole of one winter I used sulphonamides prophylactically in every case, but it was difficult to assess with certainty the value of this step, and now I use them only prophylactically in poor-risk cases.

Peritonitis from Leakage

There are two places from which a leak may occur a Polya type gastrectomy—the duodenal stump and gastro-jejunal anastomosis. It occurs more commonly fr the former.

There is probably more variation in the technique closing the duodenum than of any other step in the ope tion, and undoubtedly a great many of the methods equally good and safe. There should be no difficulty the duodenal closure in the case of a gastric ulcer wh the duodenum is healthy and of average length and mo ity, but in the case of a chronic duodenal ulcer this s is usually the most exacting in the operation and frau with more danger afterwards than any other. Howev by not sacrificing time and patience to speed, or improvi tion to standard technique, a reasonably satisfact closure can be made even in difficult cases. Neverthel a leak at the duodenal stump is an accident t continues to occur from time to time, and it still ra high as a cause of death after partial gastrectomy, a may lead either to general peritonitis or to a subphre abscess.

A simple manœuvre which I believe greatly lessens danger of a leaking duodenal stump is the putting o rubber drain into the abdomen. In no single instance the present series of 200 cases have I failed to do t Most surgeons look upon it as entirely unnecessary, a probably in 95% of cases it is; but it is a harmless p cedure, and as, I believe, it saves a few lives and helps reduce the mortality of the operation to nearer zero i well worth doing. A drain must not be put in haphaza but must be most carefully placed (this applies equally all parts of the abdomen). A "stab" incision is made the right of the abdomen over the duodenum by cutti down on to the thimbled finger, and a long thin corrugat rubber drain is introduced; it is placed so that it l immediately inferior to and against the liver—it lies direc over the duodenal stump and then runs across the abdom upwards and to the left to the site of the anastomosis. is removed after four days if the abdomen seems qu satisfactory.

If a duodenal leak occurs the fluid is likely to track alo the drain to the surface and a fistula to form: continuo suction is then applied to a rubber tube with several ho in it which is inserted just into the opening of the fistu this prevents the fluid running all over the skin, with consequent extreme soreness. The fistula then gradua closes. In four cases in this series there was a leak the duodenal stump; but in none was it necessary to op the abdomen, and all recovered after a fistula had form along the line of drainage.

Many surgeons dislike putting a rubber drain into abdomen, the two chief objections being that it caus adhesions which may later lead to small-intestine obstru tion, and, secondly, that it is as likely to do harm by letti infection in as it is to do good by letting infection other things) out. I do not for one moment believe th the second reason holds good, provided asepsis is observe So far as adhesions are concerned they may cause obstru tion later if a drain is placed near the centre of the abdom and particularly suprapubically, but never when pla against the liver as described above.

Increased pressure from accumulation of fluid in stomach or duodenum after operation is another possi cause of leakage occurring at the anastomosis or at duodenal stump. This is obviated by leaving a Ryle's similar tube in the stomach and using suction for 24 48 hours.

Uraemia, Embolus, and Haemorrhage

Uraemia.—In every case an estimation of the amount of urea in the blood is made, and if this is found to be raised or if for any other reason it is suspected that there is an alkalosis or acidosis, the alkali reserve and the blood chlorides are also estimated. In a number of cases (some of them quite unsuspected) the blood urea is raised, sometimes strikingly so. In Case 192 at one stage before operation it was as high as 530 mg. per 100 ml. (believed to be accurate). It is often due to a long-standing dehydration or to excessive use of alkalis or to vomiting. With rest, time, adequate fluids, and control of alkalis most cases will improve greatly and the blood chemistry return to normal; but there should be no hurry to operate provided there is no stenosis at the pylorus.

Embolus.—It has been most fortunate that in this series there has been no fatal pulmonary embolus. In one woman an embolus that must have been large very nearly caused death, but she gradually improved after papaverine. There seems little evidence for the old teaching that emboli commonly arise in the abdominal wall. It is far more probable that the most frequent site of formation is in the veins of the calf and foot; and certainly since the calves of all patients have been under careful observation one has been surprised at the number which have shown the characteristic pain or tenderness of thrombophlebitis. In some doubtful cases this has been confirmed by phlebograms. Active exercises and early ambulation are employed in the hope of preventing thrombosis. Heparin and/or dicoumarol are used as a routine when thrombosis is detected, but not as prophylactics.

Haemorrhage.—Haemorrhage at the suture line of the anastomosis is always a possibility, though it should not occur if care is taken. In every case the clamps which are used are not only loosened but are taken off after the posterior row of sutures has been completed. All bleeding points can then be clearly seen and ligated, especial care being paid to the lesser curve of the stomach, even though the left gastric artery has been well and truly tied. Taking off the clamps makes the operation look less neat, but it is without doubt a safer procedure and the anastomosis is easier to complete. There has been no trouble or alarm at all about post-operative haemorrhage in this series except in Case 47, in which about a pint of fresh blood was vomited an hour after the operation, in addition to some blood which had already been aspirated from the stomach by the Ryle's tube. The patient, a woman of 47, with a duodenal ulcer, then made an uninterrupted recovery after a transfusion of blood.

Best Type of Operation

In an endeavour to determine the type of partial gastrectomy which will be found most satisfactory it is obviously necessary to determine and compare the results of operations done by a variety of methods. In assessing and classifying the results of any operation so many factors have to be taken into consideration that nearly always some difficulty arises. A surgeon who grades the results of his own operations may be too optimistic owing to his surgical enthusiasm, while another may be too modest to claim the wonderful results of the enthusiast.

In all of the 200 cases a similar type of partial gastrectomy has been performed, in that the open end of the duodenum has been invaginated and a blind end formed. But at the anastomosis there has been a variation of method, for, although an end-to-side union between the remains of the stomach and jejunum has been made in each case, the arrangement and details of this step have varied. It has been carried out in the five different ways shown in Table III and in the diagrams.

TABLE III.—*Types of Anastomosis Used*

A.	Retrocolic anastomosis with valve	18
B.	Retrocolic anastomosis without valve	77
C.	Antecolic anastomosis with the afferent loop to the greater curvature without valve	6
D.	Antecolic anastomosis with the afferent loop to the lesser curvature with valve	23
E.	Antecolic anastomosis with the afferent loop to the lesser curvature without valve	76

Most surgeons seem to keep to one type of anastomosis, are usually quite satisfied with it, and believe it to be the best. Lake (1948) almost invariably does a retrocolic anastomosis with a valve, and indeed was one of the earliest to do this, so that the operation is often, and rightly, known by his name. Ogilvie (1947), who does a similar operation, admits that an antecolic anastomosis is a satisfactory operation when a moderate amount only of the stomach has been resected, but says that, "when the gastrectomy is not merely radical but also valvular, an anterior anastomosis is incompatible with proper routing of the afferent jejunal loop." On the other hand, Wells and Brewer (1948), who do a very radical gastrectomy with excellent results, prefer an antecolic anastomosis with a valve; and Visick (1948), who has reported in much detail his series of over 500 cases, always does an antecolic anastomosis without a valve: he leaves very little of the stomach, and the functional results of his cases are also excellent.

The obvious conclusions to be drawn from these facts are that good results are being obtained with either an antecolic or a retrocolic anastomosis and with or without a valve.

Results

Of the 199 patients in this series who survived the operation the results after a period of between one year and eleven years are available in 177.

To make an exact classification of results after partial gastrectomy is very difficult. They can be divided quite simply into good and bad, but there are so many degrees of goodness and badness that this is inadequate. It is easy to subdivide them into a greater number of grades, taking into consideration such things as age, work, social conditions, psychological outlook of the patient, as well as the position, size, and chronicity of the ulcer, etc.; and this is possibly wise when the purpose is purely to give an account of the results of partial gastrectomy. Here, however, I am largely absolved from many of these difficulties, because I am not so much endeavouring to say how good or how bad the results of partial gastrectomy are as striving to compare the results of one type of gastrectomy with another.

I have divided the results arbitrarily into three groups: (1) excellent, where the patient is free from all trouble and well in every way; (2) satisfactory, where there are some residual symptoms of a greater or less degree but where the patient is able to continue at his work and is definitely improved as a result of the operation; and (3) bad, where the patient is worse or no better than before operation. As years go by a patient is more likely to improve than to

deteriorate, and some who could previously have been in group 3 are now rightly placed in group 2, and similarly some have moved from group 2 to group 1. A continuous follow-up of all patients has unfortunately not been carried out, and the number of patients in whom a result is not known (8%) is somewhat high; but there have been great difficulties in the London area with evacuation and population movements, and returned letters marked "house destroyed" have not been rarities.

For the purpose of simplicity the results from one to eleven years have all been put together. The results for all types of gastrectomy for gastric, duodenal, and anastomotic ulcer according to the above grouping are shown in Table IV.

TABLE IV

Result	Cases	Percentage of Cases Followed up
Excellent	128	72
Satisfactory	45	25
Bad	5	3
Died in hospital (operative mortality)	1 (0·5%)	—
Died of intercurrent disease a year or more later	5 (2·5%)	—
Not traced	16 (8%)	—
Total	200	

Table V gives the results of the antecolic and retrocolic anastomoses grouped together and of those cases with a valve (erroneously called Hofmeister) and without a valve grouped together. The results in these several groups are

TABLE V

	Result		
	Excellent	Satisfactory	Bad
Retrocolic anastomosis	59 (74%)	16 (21%)	4 (5%)
Antecolic anastomosis	69 (70%)	29 (29%)	1 (1%)
With a valve	24 (69%)	10 (28%)	1 (3%)
Without a valve	104 (73%)	35 (24%)	4 (3%)

so similar as to suggest that no one type of anastomosis has any appreciable advantage over another, and that the addition of a valve does not make any significant difference. We have to consider the results not only months and years afterwards but also in the first few days after the operation, while the patient is still in hospital. At this time there is not, so far as I can detect, the slightest difference in the comfort of the patients or the smoothness of their convalescence whatever the kind of anastomosis, so long as it has been properly done.

Many objections to one or other type of anastomosis are theoretical and are not based on a careful study of symptomatic results. The importance of peristalsis seems sometimes to be forgotten and intestinal contents to be thought to move along by the same mechanism as the water in a garden hose.

The feeling of fullness with or without nausea after meals can be shown by radiographs to occur either with a slow emptying or with a rapid emptying of the stomach into the jejunum, though it is commoner with rapid emptying. It is often said that the feeling of fullness is due to part of a meal entering the afferent loop and distending the duodenum; but against this are the facts that in some people screening of a barium meal after partial gastrectomy will show some barium entering the duodenum without the patient being aware of it, while in others the patient experiences the feeling of fullness without any barium being observed to enter the duodenum at all. The clinical result is more important than the radiological. These remarks appear to apply equally to a retrocolic or an antecolic anastomosis.

A number of advantages are attributed to a "Hofmeister" valve: (*a*) It obviates the feeling of fullness by preventing food entering the duodenum; but the fallacy of this has just been mentioned. (*b*) It delays the emptying of the stomach because the exit is smaller; but this is fallacious because the size of the exit is really the width of the jejunum at the entrance to the efferent loop. (*c*) It prevents, or at least diminishes, the regurgitation of bile into the mouth. From the results of my cases in which a valve has and has not been used there does seem to be slight statistical evidence for the belief that the last-mentioned is true. When food passes quickly out of the stomach the latter may be empty when the bile reaches it from the duodenum, and, should the patient be one whose stomach is intolerant to bile, regurgitation is likely to occur. If, however, a valve has been made, the flow of bile along the jejunum is so directed that it may pass the opening into the stomach without entering the latter at all.

Summary

A series of 200 cases of partial gastrectomy for peptic ulcer is reviewed with special reference to the causes of post-operative mortality, and to the comparative merits of an antecolic and a retrocolic anastomosis.

The commonest (so believed) causes of death after partial gastrectomy in this country are reviewed and means for preventing them discussed.

Emphasis is laid on the value and importance of draining the peritoneal cavity after partial gastrectomy.

It is unsound and apt to lead to error to compare the results of one type of operation performed by one surgeon with a different operation performed by another surgeon.

Figures are shown comparing the symptomatic results of antecolic and retrocolic anastomoses in this series. It is believed that the results are equally good.

There is little practical evidence that a valve at the anastomosis makes much difference to the symptomatic result, except possibly by decreasing the liability to bile regurgitation.

I am much indebted to a series of house-surgeons and chief assistants for their painstaking work in looking after these patients, but I owe an even greater debt of gratitude to the nurses for their endless skill and care, without whom many patients would have perished. They are far too numerous to name, but I make special mention of Miss E. M. Constable, sister of my male ward for almost the whole period.

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The National Council for the Unmarried Mother and her Child has published a *Directory of Homes and Hostels* in which those organizations and institutions existing primarily for the care of unmarried mothers and illegitimate children are listed, together with information on their scope, limitations, and methods of admission. The list includes all the Homes and Hostels which the N.C.U.M.C. has been able to trace, whether affiliated to it or not. Homes which are primarily *shelters* have been omitted even though they may occasionally take a case of this type. The *Directory* is in three parts. First is the main list of Homes and Hostels, with particulars, arranged under counties, with London at the end. Then comes a classified list showing Maternity Homes (confinements take place in the Home), Before- and After-care Homes (confinements take place in hospital), and After-care Homes. Finally there is a general index. Although the denomination of the Homes is given where applicable, in nearly every case Homes will take cases of denominations other than their own. The *Directory* is not intended to facilitate the direct approach of outside agencies to Homes without prior reference to social workers. This would not be in the interest of either patients or institutions. Rather is it intended to facilitate the work of all in this field. The National Council would be grateful to hear about inaccuracies and omissions, and to receive criticisms and suggestions on how the list could be improved. The list may be obtained for 2s. 6d. from the N.C.U.M.C. at 21, Coram Street, London, W.C.1.

PERFORATION OF THE RECTUM

BY

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Traumatic perforation of the rectum in civilian practice is not a common injury. The literature on the subject is scanty, especially in this country, and consists largely of single case reports. This is not surprising, for very few surgeons see more than one case. In the ten-year period 1938 to 1947 four cases of perforation of the rectum have been treated in the surgical wards of the Royal Victoria Infirmary; the total number of surgical admissions during this period was 74,000.

Of these four cases three have come directly under my care; one was the result of perforation by an enema tip, one occurred during sigmoidoscopy, and one followed impalement on a broom-handle. The fourth case was also an enema injury.

Anatomical Details

Whatever the wounding agents may be, the resultant perforations are either extraperitoneal or intraperitoneal, and their management presents many problems which are peculiar to this region. Anatomically, the rectum is for the most part unprotected by peritoneum, it traverses a tissue which is highly vulnerable to infection, and it is difficult of surgical access. The pelvic floor, through which the rectum passes, is shaped rather like a trough, the sides of which are formed by the levator ani and coccygei originating from the internal surfaces of the pelvis on each side and joining in a median raphe below. The triangular anterior wall is formed by the urogenital triangle, while the triangular posterior wall is formed by the sacrum and coccyx. Over these structures the pelvic peritoneum is loosely draped as a cover. The potential space which exists between the pelvic floor and the pelvic peritoneum is known as the infraperitoneal space; should this space become distended with pus or blood rigid fascial planes will prevent its expansion in any direction except superiorly.

Laterally, the fascial planes are formed by the medial investment of the levators; these layers join inferiorly over the raphe and become continuous at the rectal and urogenital outlet with a similar layer of fascia loosely investing these viscera, the endopelvic fascia. By common usage the term fascia propria is applied to the rectal sheath of the endopelvic fascia. Anteriorly, the levator fasciae fuse with the deep layer of the urogenital triangle and posteriorly with the sacrococcygeal fascia.

Expansion of the infraperitoneal space is therefore limited inferiorly, laterally, anteriorly, and posteriorly by fascial planes, but is unrestricted superiorly. Even the pelvic peritoneum, however, is rather firmly adherent laterally along the line of origin of the levators at the so-called "white line," where levator fascia fuses with obturator fascia; it is most loosely attached over the sacral promontory on each side of the rectum, and it is here that the infraperitoneal space readily communicates with the retroperitoneal space, and infection arising in one may easily spread to involve the other.

Surgical Treatment

These anatomical details vitally affect the surgical treatment of extraperitoneal perforations. Free drainage of the perirectal cellular tissues is essential if spreading infection is to be avoided; adequate exposure of these tissues can be obtained by an incision parallel to the side of the sacrum and coccyx, dividing the fibres of the gluteus maximus near its origin. Removal of the coccyx is not necessary in most cases, and indeed coccygectomy may be followed by unpleasant sequelae, such as intractable pain in the scar. Some maintain that adequate drainage can be obtained by a transverse curved incision inferior to the tip of the coccyx and incision of the fascia propria by blunt dissection. Having exposed and divided the fascia, it will be possible in some cases to demonstrate the perforation in the bowel wall; if it is readily found and is large it should be sutured, but if it is small and cannot be easily seen it need not be sutured, because contraction of the muscle fibres will bring its edges together and allow healing.

Opinions differ considerably about the value of a temporary colostomy as a part of the treatment. My feeling is that in any but the most trivial injuries it confers an additional safeguard which should never be omitted whether the perforation be extraperitoneal or intraperitoneal; its purpose is to divert the faecal current and place the rectum at rest by preventing any newly formed faeces being packed into it and distending its walls. In addition, the rectum should be drained from below by stretching the external sphincter and stitching in a large soft rubber tube; this should reach up for an inch or so beyond the level of the perforation.

Perforation by Enema Tips

Twenty cases of perforation of the rectal wall by enema tips have been reported in the literature. They fall into two groups: (1) pregnant women at term, and (2) persons from the sixth decade on.

Perforation of the normal bowel of the conscious patient can take place without the patient feeling much pain and without the use of much force; this is especially true of the older age groups, and of these 20 cases more than half were 55 or over. Twelve of the 20 cases were extraperitoneal, with five deaths (mortality 41.7%), and eight were intraperitoneal, with three deaths (mortality 37.5%).

While these cases are rare, it is impossible to guess at the real number that have occurred, because they form a group of cases that are only reluctantly spoken of and rarely reported. The perforations that do occur are generally complicated by the admission of the highly irritating enema solution into either the pelvic cellular tissues or the peritoneal cavity. In the absence of adequate treatment the result is either a fulminating pelvic cellulitis or a chemical peritonitis which turns very quickly into a purulent peritonitis from faecal contamination. Occasionally the solution has been injected beneath the mucosa or muscularis, and this has caused widespread sloughing of the rectal walls, with subsequent cellulitis and later stricture formation.

Case 1

A previously healthy man aged 74 was admitted with acute appendicitis of 48 hours' duration. An acutely inflamed non-perforated retrocaecal appendix was removed and he made a good immediate recovery. On the evening of the fourth day after operation a nurse gave him a soap-and-water enema by means of a Higginson syringe with a bone nozzle. About 6 oz. (170 ml.) of enema solution was injected. A few minutes later he felt a violent pain in his perineum and left groin; this persisted, became more severe, and radiated to his left loin and lower abdomen. He felt ill and nauseated. I was asked to see him six hours later. Examination at that time showed that he was very ill. The appendix scar was healthy, but the skin in the perianal region, perineum, left groin, left iliac fossa, and flank was dusky red, oedematous, and extremely tender, and there was well-marked left-sided abdominal guarding.

Immediate operation was advised: proctoscopy, performed under the anaesthetic, showed a relaxed external sphincter with copious mucoid discharge from the bowel. On the left posterior wall of the anal canal, ¾ in. (1.9 cm.) from the anal margin, was a circular clean-cut perforation ¼ in. (0.85 cm.) in diameter; the nozzle of the Higginson syringe fitted exactly into this

perforation. The perforation extended through all coats of the bowel, and a vertical track passed upwards from its outer extremity in the perirectal tissues alongside the rectal wall for approximately 2 in. (5 cm.). The rectal mucosa was acutely inflamed, oedematous, and crepitating; the upper limit of these changes was not ascertained.

An incision was made alongside the coccyx on the left side and extending down through the left ischio-rectal fossa to the posterior anal margin; the posterior fibres of the levator ani were divided, the fascia propria incised, and the perirectal cellular tissues widely exposed. The perforation was identified, but owing to the sodden and friable condition of the bowel wall no attempt was made to suture it. The cellular tissues contained enema solution, and there were, in addition, acute inflammatory changes with already, in several places, greenish slough formation; the whole area was irrigated with hydrogen peroxide, dusted with sulphathiazole powder, and lightly packed with gauze.

A muscle-cutting incision was then made in the left iliac fossa; the extraperitoneal tissues contained thin turbid crepitant fluid, and similar fluid was present in the peritoneal cavity; there were several patches of green slough on the back of the anterior abdominal wall in the suprapubic region; the rectum and lower 2 in. of sigmoid colon were acutely inflamed, oedematous, and covered with large fibrin flakes. A large rubber tube was placed down to the pelvis and brought out through a separate small midline incision; a left iliac spur-type colostomy was then performed and opened immediately. The patient's condition at the end of the operation was critical; in the next few hours the cellulitis spread to involve almost the whole of the abdominal wall and lower part of the chest wall. Intensive administration of anti-gas-gangrene serum and soluble sulphathiazole intravenously appeared to have no effect whatsoever, and death took place eighteen hours later from overwhelming toxaemia.

Case 2

This case report is taken from the hospital records, which are unfortunately incomplete. This patient, a man aged 65, had been confined to bed at home for some days because of anginal attacks. He became constipated and was given a soap-and-water enema by the district nurse. This was administered by means of a Higginson syringe with a bone nozzle. During the administration he felt a sudden violent pain across the lower abdomen and in the left iliac fossa; this was accompanied by severe nausea and vomiting. He was admitted to hospital twelve hours later and was then very ill and collapsed; the exact cause of his condition was apparently not appreciated before operation. This was performed two hours after admission. It was then seen that the pelvic peritoneum was raised up by a large collection of greenish frothy fluid in the pelvic cellular tissues; this fluid was obviously enema solution. A left iliac Mikulicz-type colostomy was performed and opened immediately; the pelvic cellular tissues were not drained. Death occurred eight hours later.

These cases emphasize once again the dangers involved in the use of a Higginson syringe with a hard nozzle of any kind; they also emphasize the extreme gravity of this type of injury. Adequate surgical treatment in Case 1 had no apparent effect on the course of the infection, and, moreover, it would seem that a successful outcome can only be expected if the catastrophe is recognized and treated immediately. A delay of even seven hours would appear to make a fatal result almost inevitable.

Perforation during Sigmoidoscopy

Perforation of the rectum during diagnostic or therapeutic procedures is probably very rare and little has been written about it. While perforation is more likely to occur in cases presenting weakening of the bowel wall by disease, many cases have been reported without any discoverable lesion in the bowel. Thus, in a series of 46 cases reported by Andresen (1947), 21 showed no rectal lesion, 13 showed carcinoma, five diverticula, three ulcerative colitis, two polyps, and one each lymphopathia venereum and haemorrhoids. In this series 19 died and 27 recovered, giving a mortality of 41.7%. The mortality rate is closely related to the time interval between perforation and operative repair. In Crohn and Rosenak's (1936) series the mortality was 47% if operation was done within seven hours of perforation; delay beyond this period results in generalized septic peritonitis, with a mortality approaching very nearly 100%.

Diagnosis.—In most cases diagnosis is made at the time of perforation; the rent may actually be seen or a loop of small bowel or other organ may come into view when the end of the sigmoidoscope has passed completely through the rent. In a few cases there has been no suspicion of perforation at the time of the examination. Furthermore, there may be a delay of several hours in the onset of symptoms suggestive of perforation; an immediate onset of acute pain occurs only in about half the cases, even though subsequent operation shows that there has been a complete rent in the bowel wall. Once perforation is suspected ancillary methods of diagnosis may prove helpful. A flat *x*-ray film of the abdomen may show gas under the diaphragm; the sigmoidoscopy may be repeated and the rent seen. Air inflation during this procedure should be avoided if possible, as it may increase the risk of spreading infection.

Case 3

This patient was a previously healthy man aged 64, with a history of recent onset of ill-defined left-sided abdominal pain accompanied by diarrhoea and the passage of mucus but no blood per rectum. No abnormality was discovered on clinical examination, but a routine barium enema and sigmoidoscopy were advised.

Sigmoidoscopy was performed a few days later by a surgical resident. There was no abnormality, apart from some congestion of the mucosa in the recto-sigmoid region: a punch biopsy of this was taken from the anterior rectal wall, approximately 12 cm. from the anal margin. No suspicion of perforation of the rectal wall arose during this manipulation, which was of course performed without an anaesthetic.

Approximately four hours later the patient was seized with intense pain across the lower abdomen, accompanied by extreme rectal tenesmus, nausea, and vomiting. During an attack of straining he developed a prolapse of the rectum 4 in. (10 cm.) long; this was reduced by the house-surgeon, who, however, failed to notice whether the prolapsed portion showed any evidence of perforation. Reduction of the prolapse did not relieve his symptoms, and I was therefore asked to see him, eight hours after the sigmoidoscopy.

He was now obviously a very ill man and in severe pain; the abdomen was completely immobile and there was diffuse tenderness and board-like rigidity. The perineum was normal; there was no bleeding from the rectum, but a profuse discharge of clear mucus. No tear could be felt within the reach of the examining finger. It was also noticed that extensive surgical emphysema affected the neck and upper part of the anterior chest wall. In view of its distribution it was felt that this was probably due to the rupture of an emphysematous bulla during straining at stool. A pre-operative diagnosis of intraperitoneal rupture of the rectum during sigmoidoscopy was made.

Operation was performed ten hours after the original sigmoidoscopy. A left paramedian incision was made: there was a large collection of thin yellowish sero-purulent fluid in the pelvis and in both flanks; a circular perforation ⅓ in. (0.85 cm.) in diameter with clear-cut margins was found on the right antero-lateral surface of the pelvi-rectal junction, approximately 3 cm. above the peritoneal reflection. There was no other lesion of the large bowel to account for the patient's original symptoms, and these were presumably due to a mucous colitis. The perforation was closed with a purse-string suture of catgut and the pelvis drained with a wide sheet of corrugated rubber. A left iliac spur-type colostomy was performed and opened immediately. Apart from a moderately severe wound infection, the patient made an uneventful recovery; the colostomy was closed after two months, and

nine months later he was known to be well and with normal bowel action. Biopsy of the specimen removed at sigmoidoscopy showed a portion of normal rectal mucosa.

Comment.—This case emphasizes again the dangers inherent in the use of a sigmoidoscope. These dangers can be lessened, if not eliminated, by a thorough training in the use of the instrument, a sound knowledge of the anatomy of the area, gentle handling without force, and, above all, good lighting to visualize the direction of the intestinal canal. If good visualization is impossible owing to persistent angulation of the bowel, or to faeces, blood, new growth, or other objects obscuring the lumen, the examination should be discontinued.

Treatment.—If operation is decided upon it should be performed as soon as the patient has sufficiently recovered from the shock of perforation. Treatment consists essentially in suturing the perforation, draining the pelvis, and performing a proximal colostomy. In a very few cases it may be considered wiser to treat the patient conservatively: these will mainly be cases in which perforation has not been recognized for twenty-four hours or so, and in which localization of the infection already appears to be occurring.

Perforation by Impalement

These bizarre wounds are of interest because of their comparative rarity and possible sequelae. The methods by which they are sustained are as numerous as the instruments which cause them, but it is curious to note that the majority of reported cases resulted from a fall from a hayloft on to the handle of a pitchfork. Men are affected in 75% of cases, and according to Habhegger (1912) approximately half of them are farm-workers.

There is an anatomical reason for the occurrence of this type of injury; the thigh surfaces, the ischial tuberosities, and the soft parts surrounding the anus tend to form a funnel-like contour which directs penetrating objects, especially those that are blunt, through the anus into the rectum. Because of the oblique relation of the rectal wall to the pelvic outlet the anterior wall of the rectum is the most frequent site of perforation, and the reported cases fall roughly into one of five categories: (1) The impaling object merely enters the lumen of the rectum and causes an abrasion or tear of the mucous membrane only. (2) Penetration of the rectal wall occurs at a low level and the urethra in the male or the vagina may be lacerated. (3) At a higher level, penetration of rectum and bladder occurs without, however, entering the peritoneal cavity. (4) If the force is greater the bladder may be completely traversed and the impaling object enters the peritoneal cavity through the dome of the bladder. (5) High rectal or even sigmoid penetration occurs, missing the bladder altogether and reaching the peritoneal cavity direct.

The immediate effects are often surprisingly slight; there may be very little pain, bleeding, or shock, and this may be most misleading. The seriousness of these injuries depends largely on whether the peritoneal cavity has been penetrated or not: Habhegger reported a mortality of 26.8% in 179 cases, but with peritoneal involvement the figure reached 78.5%.

Case 4

A youth aged 17 was admitted with a history that five hours previously he was walking downstairs in his dressing-gown when he slipped and slid downwards feet first: at the bottom of the stairs a broom had been left lying, and the handle of this went in between his legs and into his rectum. He immediately withdrew it, and as he did so felt an acute pain across the lower abdomen. Very free bleeding occurred from the bowel and severe rectal tenesmus developed.

On admission he looked and felt ill. The lower half of the abdomen was tender and rigid; the perineum appeared normal and there was no bruising round the anal margin; the external sphincter was undamaged. There was still considerable bleeding and also a copious mucoid discharge. A diagnosis of intraperitoneal rupture of the rectum was made. Sigmoidoscopy was not performed.

At operation, two hours after admission, the bladder was catheterized and 8 oz. (230 ml.) of clear urine withdrawn. On opening the abdomen free seropurulent fluid was found in the pelvis and there was a tear 1 in. (2.5 cm.) in diameter in the peritoneum of the recto-vesical pouch in the midline. This opening was enlarged laterally on each side, and a circular tear 1 in. in diameter was seen in the anterior rectal wall, 1 in. below the peritoneal reflection. The bladder was intact, but there were early inflammatory changes in the pelvic cellular tissues.

Owing to the position of the perforation deep in the pelvis, adequate suture proved impossible; a large sheet of corrugated rubber was therefore laid against the side of the bowel and brought out through the abdominal incision; the peritoneum of the pelvic floor was left unsutured. A soft rubber tube was inserted through the anus, and its proximal end was guided up to above the level of the perforation. A left iliac spur-type colostomy was then performed and opened immediately.

The patient made an uneventful recovery; the colostomy was closed after three months, and he was known to be well and with normal bowel function two years later.

Discussion

Important points in the management of these cases are to determine immediately whether the rectum has been perforated and whether there are injuries to other viscera, especially the bladder or urethra. If no gross blood is present in the urine serious bladder injury is unlikely, but if there is doubt cystoscopy should be performed.

The rectal laceration when found should be sutured if possible, adequate drainage provided, and a temporary colostomy performed. If the bladder is involved the rent should be sutured and suprapubic or transurethral drainage instituted, depending on the degree of injury.

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TREATMENT OF PERFORATIONS OF THE OESOPHAGUS

REPORT OF THREE CASES

BY

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Perforation of the oesophagus, particularly of its thoracic portion, was until recently regarded as a condition associated with a very high mortality rate. Perhaps for this reason there has been little eagerness to diagnose the lesion in its early stages. Barrett (1946) stressed the possibility of early recognition and radical treatment for spontaneous perforation. Goligher (1948) proved that early suture of perforation of the pharyngo-oesophageal wall due to crushing between the gastroscope and the cervical vertebrae is feasible. Fish (1946) recorded the successful suture of a gunshot wound of the oesophagus.

Tearing by foreign bodies, including oesophagoscopes, still remains the commonest cause of perforation. Mosher (1935) reported 19 deaths in 938 oesophagoscopies, two of these deaths occurring among the 285 cases examined

for foreign body. Occasionally patients with perforations produced in this way survive, with the formation of empyemata or mediastinal abscesses, which have been successfully drained (Churchill, 1935 ; White, 1941 ; Adams, 1946 ; Dorsey, 1948). However, the majority of patients with such perforations have died. Case 1 below illustrates the fact that perforation of the thoracic oesophagus—even multiple perforation—can be dealt with successfully by primary suture.

Case 1

The patient, a man aged 39, was a criminal in the "escape" category serving a sentence of three years' penal servitude. He reported to the prison medical officer on Aug. 23, 1948, that he had swallowed three safety-razor blades five days previously, and complained of dysphagia and precordial pain. On other occasions in prison he had swallowed pieces of glass and half a spoon, which he had passed without difficulty.

He was admitted to hospital, and a radiograph showed one razor blade in the oesophagus and at least two in the abdomen. The same morning oesophagoscopy was undertaken and an attempt made to remove the blade. The endoscopist reported that a grip was obtained on the blade, but it broke on attempting to move it and only several fragments were recovered. Haemorrhage put an end to any further intra-oesophageal manipulations.

When seen on the afternoon of the 24th he was shocked and there were signs of a right hydropneumothorax, which was confirmed by *x*-ray examination. He was transferred to this unit and operation was undertaken immediately.

Anaesthesia was induced with thiopentone and curare, and the lungs were then distended by using a facepiece and bag before passing an endotracheal tube. A right tension pneumothorax developed, respiration ceased, and the pulse almost disappeared. On inserting a large-bore needle in the right chest air hissed out and the patient rapidly recovered. An endotracheal tube was then passed and anaesthesia maintained.

The right sixth rib was resected and a large quantity of fluid containing pus and altered food was aspirated from the chest. The right lower lobe appeared to be consolidated. The mediastinal tissues were inflamed, and the pleura overlying the mediastinum and oesophagus showed jagged tears in a number of places. On incising the mediastinal pleura the oesophagus was seen to be cut open from 2 in. (5 cm.) above the azygos vein to 4 in. (10 cm.) below it. The vein itself was intact, and to facilitate exposure it was doubly ligated and divided.

The oesophagus was then opened up by joining the main 6-in. (15-cm.) tear to several small ones above and below it. At the upper part of the slit area there was a large abrasion on the right side of the oesophageal wall, with some necrosis. On the left side of the oesophagus there were four deep slashes penetrating the mucosa and musculature into the mediastinal tissues but not opening into the left pleural cavity. A further abrasion was present on the posterior wall towards the lower end of the oesophagus. At this point a broken half of a razor blade was found and removed. The cuts on the left side of the oesophagus were sutured from inside that organ, using a single layer of interrupted silk and turning the edges of the mucosa into the lumen. A good repair was apparently obtained.

The incision on the right was then sutured, leaving the knots of the silk sutures within the lumen of the oesophagus so far as was possible. The necrotic-looking area was excluded by stitches and left outside the oesophageal lumen. The mediastinal tissues were widely opened up by forceps dissection into the right pleural cavity, and a closed water-seal drain was inserted up to the oesophagus with side holes for draining the pleural cavity. Sulphonamide and penicillin powder was dusted in and the chest wall was closed.

The patient was maintained on intravenous and later on rectal fluids. He was given penicillin, and his general condition improved greatly.

On Aug. 28, four days after operation, a small amount of fluid was given by mouth and it immediately appeared through the tube draining his chest. He returned to parenteral fluid and on Aug. 30 a laparotomy was performed. Three half of razor blades were removed from various portions of intestine and a Kader-Senn gastrostomy was carried out. was subsequently fed through his gastrostomy opening, but lower lobe of his right lung failed to expand and he remain pyrexial.

On Sept. 6 bronchoscopy was performed, and a large amou of pus was sucked out of the right lower-lobe bronch following which pyrexia subsided and the lung re-expande In spite of this, on testing the healing of his oesophagus giving him a small amount of water coloured with indig carmine the dye immediately appeared through his tube.

Since healing was unsatisfactory, oesophagoscopy was carri out on Sept. 21. The oesophagoscope was passed betwe two rows of sutures, which were clearly seen, but no fistu was apparent and there was no tendency to stricture formatio The oesophagus contained fragments of half-chewed appl and on subsequent search of his room quantities of food a cigarettes were found concealed—this in spite of the fact th a warder was in constant attendance. Security measures we tightened up and his oesophagus now very rapidly healed, shown by the dye test, and on Oct. 4 the gastrostomy tube w removed.

There was still a small sinus into his chest, but this w rapidly healing and there was good aeration of his right lung.

Accordingly he was returned to prison on Oct. 7, where h made good progress. He subsequently developed a sma localized empyema in the anterior part of his right chest, pr sumably a residual pocket left by the expanding lung. It w found possible to deal with this without removing him fro the surveillance that seemed to be so necessary for his welfar Oesophagoscopy on Dec. 20 showed good healing and n stricture, although the sutures were still present.

Recovery in this case is somewhat surprising in view o the extent of the damage, the long delay that took pla between perforation and repair, and the considerable degre of infection that had already occurred, as well as th uncooperative attitude of the patient, who was anxious t prolong his stay in hospital indefinitely.

Comment on Case 1

The treatment of this case can be epitomized as drainag of the mediastinum and repair and defunctionalization o the oesophagus. Drainage of the mediastinal tissues should always be into the pleural cavity, opening the mediastina pleura from top to bottom. The posterior extrapleural route—unless it is to resemble a Sauerbruch thoracoplasty —cannot effectively drain the mediastinum. In an early sutured tear of the cervical oesophagus with only slight upper mediastinal involvement mediastinotomy might be considered justified, but as soon as the mediastinitis extends so that the drainage is no longer dependent thoracotomy would be necessary. In view of this and of the difficulty in appreciating the extent of the infection, it is probably wiser in all cases to open the thorax at the outset.

The ideal time for exploration seems to be either before complications can develop or as soon as measures have been taken to deal with such urgent complications as tension pneumothorax. The surgeon who believes he has perforated the oesophagus during an endoscopy should, if facilities are available, have the anaesthesia continued, turn the patient over, and open his thorax. In such a case it should be possible to proceed with a gastrostomy immediately. If the patient is not fit to stand a gastrostomy, rectal or intravenous feeding should be continued for a few days and then the gastrostomy performed. Even if primary suture is carried out disappointments are only too common, and are likely to remain so until the diagnosis is made before serious infection has intervened. Case 2 illustrates a tragedy of this type.

Case 2

A woman aged 54 was admitted to hospital complaining that she had swallowed a chicken bone on Sept. 21, 1948, and that it was sticking in her chest.

Oesophagoscopy was carried out the next day under a general anaesthetic. No foreign body was found, but an abrasion of the mucosa was seen low down in the oesophagus. She was returned to the ward and shortly afterwards, at 4 p.m., suddenly complained of difficulty with breathing and of pain in the left side and back. She was reported as being obviously shocked, and oxygen and nikethamide were administered. Her condition did not improve very greatly, respirations became increasingly difficult, and diminished air entry was noted on the left side.

On Sept. 23 she was somewhat easier. When seen later that day she was pyrexial, and obviously her oesophagus was perforated into the left pleural cavity. *X*-ray examination showed hydropneumothorax and mediastinal emphysema. There were many moist sounds throughout the right lung and no breath sounds on the left. The heart and trachea were displaced somewhat to the right. She was not fit to be transferred to the chest unit and was treated in the hospital of admission. A needle was inserted into the left chest immediately and attached to an under-water drain. Air bubbled up under pressure and there was a considerable improvement in her condition.

Operation was then undertaken. The seventh left rib was resected. The pleural cavity appeared to be grossly infected and large quantities of thin pus and fibrin clot were present. A hole was noted in the pleura just in front of the aorta, and through this area the mediastinum was laid widely open. Thin pus gushed from the interstices of the mediastinal tissues. On retracting the aorta a tear 1 in. (2.5 cm.) in length was seen in the posterior aspect of the oesophagus just above the diaphragm. This was sutured with five interrupted silk sutures, and a rubber tube leading to the mediastinal perforation, with side holes to drain the pleura, was inserted and attached to a water-seal. Penicillin powder was dusted in and the chest closed. Large doses of penicillin and a rectal drip were administered. Morphine and its derivatives were avoided owing to the considerable degree of lung oedema, and coughing was encouraged for the same reason.

When seen next day her condition had greatly improved. The left lung was aerating well, and fluid still escaped from the drainage-tube. Rectal fluids were being returned, and owing to the condition of her lungs intravenous therapy was contraindicated. For the same reason I was not anxious to subject her to another operation, so a soft Ryle's tube was passed into the stomach and feeding was continued by that means.

She remained well until 10.45 p.m., when she suddenly collapsed while talking to somebody in the ward and died within a few minutes.

At necropsy the torn area in the oesophagus was found to be adequately sutured and watertight, but both lungs were very oedematous and the left lung was partly consolidated. There was of course mediastinitis and inflammation of the left pleural cavity. I believe that death in this case was due to the lung oedema of acute heart failure resulting from the effect of her severe infection and from toxic absorption. It was difficult to see what other measures could have been taken to prevent a catastrophe, but it is some encouragement to know that the suture itself was effective.

Conservative Treatment

Whilst it has been stressed that a perforation or a suspected perforation of the thoracic oesophagus should be explored without awaiting the development of signs of that condition, suspected perforation of the cervical oesophagus is possibly in a different category. Here the part concerned is under more direct observation and there may in some cases be a place for conservative treatment. No criteria can be laid down for this, and at the very first indication of infection or extravasation outside the oesophageal wall the surgeon must be prepared to explore the oesophagus and suture the tear. Case 3 illustrates successful conservative treatment.

Case 3

A woman aged 20 reported at hospital on Nov. 6, complaining that whilst eating stew the previous evening a bone had stuck in her throat and had remained there ever since.

Under a local anaesthetic she was examined with a laryngoscope, but it was not possible to pass the upper oesophageal sphincter and no foreign body was found. She was kept in bed and developed a pyrexia up to 100.4° F. (38° C.); there was some fullness in the tissues of her neck. She was put on penicillin the same day. On Nov. 8 a radiograph showed the swallowed bone just above the sternum on the right, but there were no signs of surgical emphysema either on the radiograph or clinically. Under a general anaesthetic an oesophagoscope was passed with ease. Just below the sphincter on the right side there was an area of oedema and redness. On pressing the folds apart a piece of bone was seen lying on the surface of the oesophageal wall. This was gripped with forceps and a long spike 1¼ by ¼ in. (3.2 by 1.9 cm.) was withdrawn from its position transfixing the wall of the oesophagus. A small piece of bone was also found lying loose; this was removed. After removal the small perforation made by the spike of bone could be clearly seen.

The patient was given 1,000,000 units of penicillin daily and, after twenty-four hours, sterile water by mouth. Her temperature subsided immediately after oesophagoscopy and remained down. At no time was there any *x*-ray evidence of surgical emphysema, and her clinical condition gave no cause for alarm. After ten days she was allowed a full diet and was discharged from hospital.

In this case there were very considerable doubts whether further surgery should be undertaken when such an obvious perforation of the oesophagus was seen, but the site was so accessible that had any infection arisen it would at once have been apparent and could have been dealt with. The conservative policy adopted was justified by the end-result.

Summary

The importance of early diagnosis and primary suture of instrumental or foreign-body tear of the thoracic oesophagus is discussed. Lines of treatment are suggested, and two cases are described, one of which had suffered multiple oesophageal perforations from a razor blade and had recovered after primary suture.

Conservative treatment for suspected damage to the cervical oesophagus is suggested, and is illustrated by a successful case.

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The Government has issued a pleasantly illustrated pamphlet entitled *The Budget and Your Pocket* (H.M.S.O., 3d.) describing what money is collected from the taxpayer and how it is spent. It says that the tax money spent on health services is 7s. 9d. a family a week. The hospital service accounts for about 5s. a week of this, over half being the pay of doctors, nurses, orderlies, and other staff; rather over 1s. a week goes to general practitioners, and 9d. to the dentists; the remaining 1s. covers medicines, appliances, spectacles, eye testing, and so on. "It may seem strange," concludes the pamphlet, "to keep some prices high by taxation so as to raise money which is partly for a budget surplus to keep prices down. But that is exactly what must be done. . . . The final remedy will come when we are producing more, and producing it more efficiently so as to keep our prices down—earning more money, and getting more for it."

SIMULATED AMNESIA FOR IDENTITY TREATED BY ELECTRICALLY INDUCED EPILEPSY

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Inability to recollect identity is commonly complained of in hysterical fugue states, and sometimes by borderline hysterics and malingerers. It is occasionally seen after an epileptic fit or with serious organic brain damage or wasting.

Clouding of consciousness (as in epilepsy and concussion) or intellectual impairment (as in senility) is characteristic of the organic type. As an organic phenomenon inability to remember one's identity implies such a profound disturbance of brain function that memory, judgment, and even simple intellectual processes are bound to be impaired.

Inability to identify oneself, with clear sensorium and intact intellect, cannot be attributed to a local brain defect. Thus a patient who persists that he does not know who he is and has no recollection of his life's history up to the time of the examination, but is otherwise intellectually clear, is either feigning or suffering from a true hysterical amnesia. In the latter case it should be possible to restore memory easily by hypnosis or other usual psychotherapeutic procedures within a few days, especially if full use is made of the associations of everyday life, such as press news, sporting events, and the like.

Almost certainly, all continuously resistant subjects are malingerers. It is very doubtful if a genuine psychological amnesia persisting for years has ever occurred, although this idea has proved a plot for various successful novels and screen plays. A good account of amnesic states is given by Parfitt (1944).

Malingering

We have never seen a case of "primary malingering"—that is, deliberate denial of knowledge of identity without some previous hysterical state. We believe that it is very rare and that it is likely to be used only in situations where an individual wishes to escape recognition and is unable to establish another identity or think of a better excuse. For this form of amnesia is bound to bring the individual immediately to hospital—where his movements will be restricted and he will be under the notice of the police—and to stir up interest and stimulate research into his past. Thus it will not be used by a criminal with a previous police record who wishes to escape detection for a recent crime; the fingerprint service and the B.B.C. would make it useless. Nor will a malingerer simulate loss of identity near his home, where he can be recognized by others or confronted with his parents. The lie has purpose only if a patient wishes to make use of a hospital or plead a psychiatric excuse for conduct. Thus we find it used by hysterics who wander from home unable to face some situation, by ex-gaolbirds seeking temporary lodging, or by deserters from the Forces.

The pretence is difficult to keep up and can succeed only if the patient has had experience of being treated for hysterical amnesia and knows the kind of investigation that will be made and the questions he will be asked.

In our experience the simulation is always secondary, a is either the continuation of a hysterical episode—t patient keeping up the pretence after his memory has be restored because he finds it convenient to do so because he cannot face the results of exposure—or is us by hysterics who have had previous attacks of genui hysterical amnesia.

Hysterical behaviour is facilitated by previous attack and the pattern of each is usually the same. This is true for psychic as for motor manifestations. Thus amnes or wandering states are rarely isolated episodes in th history of the hysteric, and, after having occurred a fe times, a very trivial stimulus may suffice to produce a attack. This probably accounts for the ease with whic professional mediums pass into trances, for states of di sociation are easily induced by frequent repetition.

Hysterics feigning amnesia may even come to doubt the own reality and so develop a perplexed cloudy state. Ou patient, for example, would repeat his name over and ove again to himself, and told us subsequently that at one tim he used to write down his real name on a small piece o paper and pin it to his pyjamas at night, lest he shoul forget it.

Simulated loss of identity is therefore a lie that come easily only to the hysteric, and it may be a pattern o conscious behaviour in a certain situation established by previous unconsciously motivated habit.

These cases are most difficult to treat. They handl hypnosis and narco-analysis in the most guarded way, an usually reveal false clues. They become more expert wit every subsequent session. If the intravenous narcotic o ether is pushed they may feign sleep so that the drug will be withdrawn. They attempt to learn about con temporary life from the papers, the radio, and othe patients, and are ready to point out that they have learne about past and current world affairs since entering hospital This remarkable ability to learn and remember effectively rules out organic brain damage as a factor.

The man whose case is described below kept up his ac for many weeks and in three different hospitals. He behaved true to type, improving in co-operation with every session supplying more and more useless information. He was bold enough to describe real episodes of his life, withholding essential details. He spoke of his experiences in the R.A.F., of accidents and illnesses, described hospitals where he had been treated, and even suggested that he had been a male nurse. All these statements were true, but were given without dates or names of hospitals, so none of his clues could be followed up.

He suggested a name for himself which was false, but it was by this false name that he agreed to be known when he was admitted to hospital.

Case Report

The patient, a man aged 24, was admitted as a voluntary patient to Barrow Hospital, Barrow Gurney, near Bristol. His medical history as known to us at the time of his first examination there was as follows. On the night of June 22, 1948, he reported to the police in Bath, saying that he had a headache with loss of memory. He was taken to a hospital, and stated that he did not know who he was or where he came from, nor could he recollect any facts of his life before reporting to the police. He had some money, but was without identity card or ration book; there was no name or mark on his garments, except a name—afterwards found to be incorrect—on his tie. He was dressed in flannel trousers, sports coat, shirt and tie, shoes, socks, and underclothes. He had no hat. Narco-analysis was attempted on several occasions at this hospital, and he was afterwards transferred to another hospital, where he underwent ether abreaction and other psychotherapeutic procedures. He

formed us that he was still unable to recollect anything elevant in spite of all attempts.

Examination on his admission to our hospital revealed no ganic disease or change in the central nervous system, and e electroencephalogram was within normal range. He had well-healed operation scar of the left forearm, and his nose d been broken.

He gave a clear account of all events subsequent to being ought in by the police about six weeks before. He related isodes of his past life, which he said had been told him by ctors after sessions of ether abreaction and narco-analysis. e stated that he had been an orderly in the R.A.F., and had d an injury to his left arm, for which he was treated. He was scharged from the R.A.F. on psychiatric grounds, and later as a male nurse at a hospital "somewhere in the country." e gave the name and number of the ward in which he worked. t not the name of the hospital. He gave the Christian names many relatives, but not their surnames.

He persisted that he was most anxious to ascertain who he as, and stated that his desire was to be made well so that e could return to work. While in hospital he read industiously. He showed no obvious concern about being in hospital, and his indifference to the seriousness of his condition as in marked contrast to the concern that he stated he felt.

Obviously further psychotherapeutic sessions were contraindicated, and we were able to prove that the patient was lying. e probably did not have an important criminal record, for e willingly allowed fingerprints to be taken and a description rculated in the *Police Gazette*. Proof of feigning was supplied in the following conversation.

Q.—What would you do if I discharged you from hospital to-day with ten shillings ?
A.—I suppose go back to the doctor in Bath.
Q.—But if I warned you that no hospital would accept you, how would you make a start in the world ?
A.—I suppose I would have to go to the police.
Q.—How would you set about getting an identity card ?
A.—I suppose from the police.
Q.—How would you get food ?
A.—I do not know.
Q.—You must know. Please think. What would you do about paying for food as soon as you left hospital ?
A.—I do not know. I cannot remember. I suppose I would get help.
Q.—Would you get a ration book, and if so where ?
A.—I would have to ask the police where to get it.
Q.—What is rationing ?
A.—A system for the fair distribution of food.
Q.—Then what is a ration book ?
A.—You forget that since I came to hospital I have read a lot to find out what I am and what I should do. I have studied *Picture Post* and other papers since 1939.
Q.—Why 1939 ? What has that got to do with it ?
A.—I do not know. I cannot remember.

In this way he was caught. He probably knew about identity cards and certainly knew about rationing and the outbreak of war, although pretending that he did not.

He gave his consent to any measure being employed that could restore his memory, including electric convulsion therapy. We are not aware that induced epilepsy has been applied in this way before.

The rationale for induced epilepsy was as follows. During the post-convulsive phase of an epileptic fit neural function is re-established according to Jacksonian rules. Thus, after breathing has returned and while unconsciousness is still deep, spontaneous movements and motor restlessness appear. Speech functions return, with a period of aphasia ; knowledge of parts of the body is restored before that of external objects (Hemphill and Walter, 1941). The patient becomes aware of himself and therefore is able to establish his identity before he can be aware of his surroundings or has any other recollection of antecedent events. Thereafter there is an increasing awareness of external reality, with diminishing amnesia ; finally, the amnesia contracts until it covers little more than the period from the onset of the fit until cerebral function has been fully restored.

Having regard to the order in which psychic functions return, it was fairly certain that our patient would recollect his name and address, and probably something of his family affairs, before brain function was sufficiently restored to enable him to remember that he must lie ; in other words, to apprehend the situation which demanded the lie and the implications of restored identity requires a much higher degree of cerebral integration and activity than merely to recollect name and address.

It was therefore probable that if the patient disclosed his identity in the post-epileptic state he would be unable to recollect that he had done so—for with cerebral function still low he would be unable to form clear memories, as is seen in alcoholism and in concussion—and that he would persist in his lie as soon as he had sufficiently recovered from the epileptic state. This is in fact what occurred.

Treatment

A major epileptic fit was induced electrically. As soon as breathing was re-established and he was responsive to external stimuli, questions about his identity were repeated until finally he gave his name. As brain function improved he was able to give his home address, his brother's name, and his father's occupation. He then slept. He was interviewed 1½ hours later, when he was completely free from the effects of the epileptic fit. He then said he could not remember anything about the treatment except that the electrodes had been applied to his head. When the name and address he had given were told to him he stared blankly and said they meant nothing to him. The interview then terminated. Check-up proved that he had disclosed his correct name and address. He was informed of this and told that in his own interests he must remain in a closed ward in case there should be a further fugue state. He still denied that the remembered name was correct. The following day he sought an interview, stating that he realized "the game was up," and he then gave a detailed account of his early life. Briefly this was as follows.

The Patient's Previous History

He had been employed in a large electrical firm in the Midlands. A few days before leaving home he had been offered promotion to a responsible post. He felt inadequate to take the post, but as his colleagues knew of the offer he felt that he could not refuse without loss of prestige. Further, he lived in constant dread of his father, whom he could not face. He decided to get away from his place of work and his home. There appears to have been a genuine fugue state similar to what had occurred on previous occasions. He stated that there had been a period of amnesia following mental stress in 1945, when the amnesia was cured by narco-analysis. There were other incidents of a similar nature. Early in 1948 he left home after a quarrel with his father, and was apprehended by the police in another town, where he was standing alone on a river bank. He appears to have feigned loss of memory, and was subsequently admitted to the county mental hospital, where he said he had difficulty in convincing the authorities of his correct name. He admitted that he had once been in the hands of the police as a juvenile for some minor civil offence.

From our assessment and his history, which was confirmed by his parents, he was above the average in intelligence, but always self-centred and prone to hysterical reactions. His home was comfortable. It appeared that the father had always expected much of the son. On the whole the patient enjoyed being in the R.A.F., and it is probably true that there was no amnesic episode until his arm had been injured.

Points of clinical importance in his history are : (1) The patient's basic personality was hysterical and immature, but in spite of poor adjustment at home there was no history of an amnesic episode until he actually came under medical treatment in the R.A.F. (2) The first attacks seem to have been true hysterical dissociation, with true loss of memory, and these were cured quickly by narco-analysis. (3) The patient improved on his medical knowledge by serving as a male nurse even after he had had hysterical fugue states. (4) His apparent loss of memory for identity appeared only after a wandering state had brought him well away from home. (5) It was easy for him to simulate loss of memory for identity, because he had had previous true hysterical episodes with hospital treatment. (6) His carefully conducted defence became stronger as he became more adroit at evading the issues with every attempt at psychotherapy.

Discussion

Induced epilepsy is likely to be of value only in the case of simulated inability to remember identity. The usual procedures should be employed in true conditions of psychogenic amnesia. Induced epilepsy is valueless in restoring truth in any other kind of lie (except perhaps hysterical mutism, deafness, or blindness) because it uses a neural phenomenon which makes the patient able to identify himself correctly before he is capable of remembering external events and sorting them out.

Summary

A case is described in which induced epilepsy was employed to establish identity in a patient who feigned amnesia for his name and the total previous period of his life. This type of amnesia and the neuro-physiological rationale of the treatment are discussed.

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AN UNUSUAL CASE OF CHRONIC MYELOID LEUKAEMIA

BY

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The interesting feature of the following case is the response to treatment devised for a mixture of cirrhosis of the liver and myeloid leukaemia.

Case History

The patient, a man aged 61, was admitted to this hospital on March 13, 1946, with chronic myeloid leukaemia, marked splenomegaly, and ascites. A careful history revealed that he had been treated for pernicious anaemia since 1931, but the report of a blood count taken on Dec. 8, 1931, failed to substantiate this diagnosis. It was as follows : haemoglobin, 76% ; red cells, 3,820,000 ; colour index, 1 ; white cells, 9,600 (polymorphs 75%, lymphocytes 15%, eosinophils 1%, basophils 2%, large hyaline cells 2%, transitional cells 5%).

The next report to which we had access was dated March 11, 1941, and the blood count was as follows : haemoglobin, 98% ; red cells, 4,300,000 ; colour index, 1.14 ; mean diameter of red cells, 7μ ; nucleated red cells, 1,000 per c.mm. ; poikilocytes and polychromatic cells ; white cells, 26,000 (polymorphs 56%, eosinophils 1%, basophils 2%, lymphocytes 9%, monocytes 6%, neutrophil myelocytes 20%, eosinophil myelocytes 1%, basophil myelocytes 3%, myeloblasts 2%). The report stated: "The white cell picture tends towards that of chronic myelogenous leukaemia."

On June 14, 1941, the white blood count had increased to 36,000, but the differential percentages remained constant.

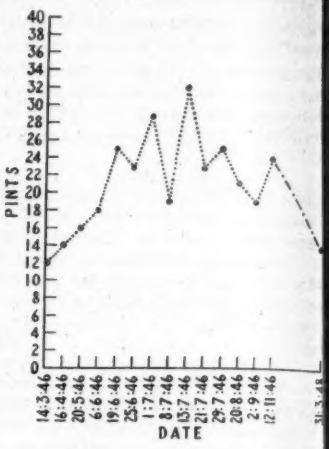

CHART 2.—Amounts of ascitic fluid withdrawn.

No further reports were available until Nov. 3, 1944, when the blood picture was : haemoglobin, 69% ; red cells, 3,420,000 ; colour index, 0.99 ; nucleated red cells, 1,270 ; reticulocytes, 2.2% ; white cells, 35,700 (polymorphs 44%, eosinophils 1%, lymphocytes 25%, monocytes 12%, myeloblasts 4%, neutrophil myelocytes 11%, eosinophil myelocytes 1%, basophil myelocytes 2%). Blood counts were then taken at fairly regular intervals ; these are recorded in Chart 1. In the differential counts the percentage of myelocytes varied between 6 and 30%, while that of the myeloblasts varied between 1 and 23%.

The most characteristic blood count was that taken on Aug. 24, 1948, and is therefore given in detail : red cells, 3,100,000 ; haemoglobin, 61% ; colour index, 0.99 ; white cells, 17,130. Differential count was as follows : neutrophil polymorphs, 9,350 (55%) ; basophils, 510 (3%) ; neutrophil "staffs," 850 (5%) ; neutrophil metamyelocytes, 1,800 (10.5%) ; neutrophil myelocytes, 3,150 (18.5%) ; myeloblasts, 950 (5%) ; lymphocytes, 340 (2%) ; monocytes, 0 ; normoblasts, 90 (0.5%) ; erythroblasts, 90 (0.5%).

On March 14, 1946, paracentesis abdominis was performed and 12 pints (6.8 litres) of ascitic fluid were removed. The very marked and extensive oedema of both lower limbs was not affected in any way even after massage. On March 15 a blood transfusion of 2 pints (1.14 litres) of blood was given, and this was repeated on March 29, April 4, and May 24. The patient also received massive doses of iron daily.

Paracentesis abdominis was repeated on April 16, and 14 pints (7.95 litres) of ascitic fluid were removed. This process was repeated at rapidly diminishing intervals during the next three months, until as much as 24 pints (13.6 litres) were being removed every five days. The exact dates and amounts are

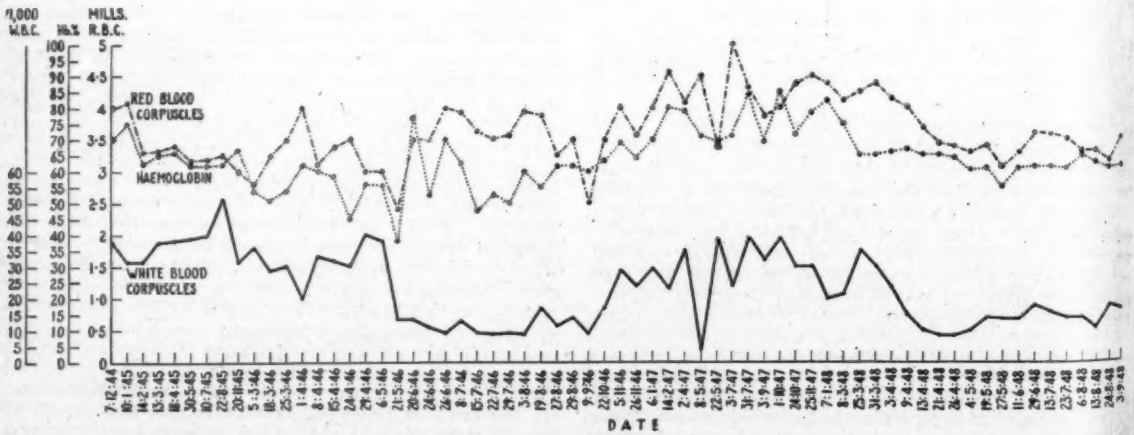

CHART 1.—The blood count.

iven in Chart 2. The protein content of the ascitic fluid varied tween 2 and 2.5 g. %.

By this time the patient was markedly emaciated and the bdomen was grossly distended by ascitic fluid and a large leen, which reached right down into the pelvis. His liver, owever, was only slightly enlarged.

On July 2 an estimation of the plasma protein gave a reading f 5.1 g. %, and a hippuric-acid test showed that the amount f hippuric acid passed in the four-hour period was only ·922 g., with the maximum excretion in the second hour. was therefore decided to give 1 g. of choline chloride and g. of cystine twice daily. This was done on the assumption at choline and cystine can help to prevent hepatic cirrhosis e to a very low protein intake.

The hippuric-acid tests were repeated, with the following sults :

Date	Amount of Hippuric Acid Passed in 4-hourly Period	Maximum Excretion
12/7/46	2·7504 g.	3rd hour
19/7/46	3·1794 g.	3rd ,,
30/7/46	3·0220 g.	2nd ,,
6/8/46	3·0468 g.	2nd ,,
20/8/46	3·3484 g.	2nd ,,
29/8/46	3·5882 g.	2nd ,,

It was therefore concluded that there had been a great mprovement in the liver function during this period.

Attempts were also made to raise the low plasma protein evel by repeated plasma transfusions, high protein diet, and he addition of "casydrol" by mouth. Plasma protein estimaions were as follows : July 2, 1946, 5.1 g. % ; July 12, 6 g. % ; July 15, 5.4 g. % ; July 19, 5.5 g. % ; July 29, 2 g. % ; Aug. 6, 6.2 g. % ; Aug. 20, 6.8 g. % ; Sept. 2, 85 g. % ; Oct. 1, 1947, 7.8 g. % ; Jan. 1, 1948, 8.8 g. %—ie., 5.2 g. of albumin per 100 ml. of serum and 3.6 g. of globulin per 100 ml. of serum (albumin–globulin ratio = 1 : 1.5) ; March 9, 1948, 6.25 g. %—i.e., 4.5 g. of albumin per 100 ml. of serum and 1.75 g. of globulin per 100 ml. of serum ; albumin–globulin ratio = 2.6 : 1. It was, however, noticed that although the plasma protein level was 6.8 g. by Aug. 20, 1946, the ascites persisted.

The patient felt very much better, and it was then decided to try to keep the white blood cells within reasonable limits by the administration of urethane by mouth. He was given 1 g. daily for four weeks and the white blood count was recorded daily. After that he was placed on a maintenance dose of 1 g. thrice weekly and weekly blood counts were recorded.

The remarkable fact was that the ascites after tapping took much longer to recur, and when he was tapped on Nov. 12, 1946, 24 pints (13.6 litres) of ascitic fluid were removed. Since that date he has been receiving two "fersolate" tablets three times daily, 1 g. of choline chloride daily, 1 g. of cystine daily, and 1 g. of urethane thrice weekly, with occasional rest periods as determined by blood counts.

He was seen again on March 31, 1948, when he was admitted to hospital for another paracentesis—i.e., after an interval of 16 months. Fourteen pints (7.95 litres) were removed on this occasion, and he remained free from signs and symptoms of ascites until Sept. 4, when he was last seen. His liver was just palpable at the costal margin, whilst his spleen extended only a hand's breadth below the left costal margin. His weight has remained fairly stationary in spite of his excellent appetite, and he feels very fit though his haemoglobin is low.

Since May, 1948, I have administered, in addition to the other medicines, 4 ml. of "anahaemin" intramuscularly at weekly intervals in an attempt to raise the haemoglobin and red blood cells, but so far without success. It has also been necessary to administer the urethane in doses of 1 g. daily to keep the white blood count within reasonable limits.

Discussion

This case is most interesting because when the patient was first seen in April, 1946, it was thought that he would live only a few weeks. The remarkable change which took place in his general condition after the administration of the cystine and choline chloride was astonishing. His plasma protein rose fairly rapidly, the ascites became less pronounced and required less frequent tapping, his liver became normal in size, and he rapidly put on weight. After the addition of urethane his white blood count was kept within reasonable limits and his spleen rapidly diminished in size.

It is impossible to draw any conclusions from only one case, but I consider that there is a very fruitful field for the treatment of such cases with cystine and choline chloride in combination with urethane.

As pointed out by Cheney (1934), the presence of ascites in cases of chronic myeloid leukaemia seems to be rare, and very few cases have been recorded in the literature. He gives a detailed description of two such cases, and mentions the close resemblance of this condition to Banti's disease. The importance of making a correct diagnosis is stressed, as also is the institution of the appropriate treatment. He considers that the only probable causes of the ascites in these cases are portal thrombosis and low colloidal osmotic pressure of the blood plasma.

I would like to express my deep appreciation to Dr. F. Young for her invaluable help in the pathological investigations in connexion with this case.

REFERENCE

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RUPTURE OF THE LIVER ASSOCIATED WITH PARTURITION

BY

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A case is described in which an unusual complication developed during or after labour, giving rise to an acute abdominal condition. A rupture of the liver associated with haemoperitoneum was found at operation.

Case History

The patient, a 6-para aged 32, was admitted on Sept. 11, 1948, 17 hours after parturition, with severe upper abdominal pain. The onset was sudden, occurring one hour after expulsion of the placenta and after the midwife had left the house. The patient became collapsed and vomited several times. She described the pain as sharp, radiating to the back and right shoulder, and increasing in severity on movement and respiration. All six previous pregnancies and labours were normal. During the last month of the present pregnancy she had suffered from a persistent epigastric pain.

On examination the patient was pallid and weak and was prevented by the pain from moving in bed or sitting up. The temperature was 97° F. (36.1° C.), pulse 112, and blood pressure 110/85. There was generalized abdominal tenderness and guarding, and shifting dullness was detected. The liver was palpable and tender, projecting 1½ in. (3.75 cm.) below the right costal margin. Peristaltic sounds were active. The pelvic organs were normal, although considerable peritoneal tenderness was elicited by palpation of the lateral fornices. The haemoglobin was 51%. A catheter specimen of urine contained 100 mg. of protein per 100 ml.

Since the precise diagnosis was undetermined, it was decided to transfuse the patient with 4 pints (2.27 litres) of blood and keep her under close observation. Heroin in small doses was given periodically.

During the subsequent eight hours the pulse rate rose slowly to 120 and the blood pressure to 150/100. No further vomiting occurred, but as peristaltic sounds had almost ceased and the abdomen had become distended it was decided to perform a laparotomy. An intraperitoneal haemorrhage, with a large effusion of blood below the right diaphragm, was suspected.

Operation.—A right paramedian incision extending well above and below the umbilicus was made. The peritoneal cavity was full of fresh blood. The spleen and uterus were normal and the gut was distended. A large clot was found obscuring the surface of the liver; when this was removed a subcapsular haematoma was observed to extend over the superior surface of the right lobe. The left lobe was normal. The peritoneal coat had been stripped up, and there was a rent in it through which blood was oozing. The clots and free blood from the peritoneal cavity were removed, and "oxycel" gauze controlled the haemorrhage from the raw area of the liver. A biopsy of the liver was taken at the margin of the haemorrhagic area. The liver area was drained and the abdominal wall closed in three layers. A Ryle's tube which had been introduced before operation was kept *in situ*.

Progress.—The condition of the patient improved perceptibly; within 24 hours the pulse rate dropped to 100 and abdominal distension disappeared with the recurrence of peristalsis and the passing of flatus. Gastric aspiration was continued for 36 hours, after which the patient was able to take a light diet. Penicillin, 100,000 units at first, decreasing to 40,000 units, was given three-hourly for 15 days. The patient remained pyrexial for 25 days.

On the 24th day there was clinical evidence of right basal pulmonary collapse with pleural effusion. On the 34th day she developed a sharp attack of pleural pain associated with a swinging temperature of 102–98° F. (38.9–36.7° C.). A further course of parenteral penicillin was given, 60,000 units three-hourly and, later, 200,000 units twice daily, with penicillin inhalations for 18 days. Temperature and pulse rate became normal on the 43rd day. A pleural aspiration was carried out on the 39th day: the fluid so obtained was sterile.

On Nov. 11 (64th day) the patient was discharged from hospital. The blood pressure was 130/90. There was no albuminuria. Evidence of pleural effusion was still present, but her general condition appeared satisfactory.

Investigations.—The Wassermann reaction and Kahn test were negative; haemoglobin was 51%; and white blood cells numbered 22,000. A catheter specimen of urine contained 100 mg. of protein per 100 ml. The blood pressure was 114/85 to 155/100. The blood urea amounted to 124 mg. per 100 ml., the plasma bilirubin to 2 mg. per 100 ml.; and total proteins to 5.3 g. per 100 ml. (albumin, 3.1 g.; globulin, 2.01 g.; fibrinogen, 0.69 g.). A high vaginal swab produced no pathogenic organisms. An *x*-ray film of the chest showed the right diaphragm raised, with collapse of the base of the right lung and effusion, and, several days later, collapse of the middle lobe with effusion. Liver biopsy showed zonal necrosis with some cellular infiltration—an appearance compatible with that found in toxaemia.

On discharge the haemoglobin was 84%, and the white blood cells numbered 8,000. A catheter specimen of urine contained no protein. The blood pressure was 130/90. An *x*-ray film of the chest showed some improvement in the extent of effusion and pulmonary collapse. The E.S.R. was 33 mm. per hour (Westergren).

Discussion

Rupture of the liver has been described either as traumatic or as "spontaneous" rupture. The first is a well-recognized condition due to direct injury, and discussion of it is irrelevant in this article. The second—the "spontaneous" rupture—is the type to which the present case belongs. In this type the trauma is either slight or has passed unrecognized by the patient. This use of the term "spontaneous" is unfortunate, and may be misleading when applied to liver rupture, as it certainly is when used to describe a splenic rupture attributed to minimal or unrecorded traumata.

Under the heading "ruptures spontanées" Devic and Bériel (1906) have discussed liver rupture and made particular reference to the pathological condition of the organ at the time of its rupture and to the possible association with syphilis. Of the 21 cases reviewed by them only one—Abercrombie's case, to which further reference will be made—was associated with pregnancy.

Devic and Bériel suggested that when definite trauma could be excluded the term "apoplexie hépatique" might be used. They expressed a clear opinion that in traumatic rupture it is the rupture which causes the haemorrhage, but that in spontaneous rupture the haemorrhage is the cause. The sequence of events leading to spontaneous rupture is, they suggest, as follows. Rupture of a blood vessel leads to intrahepatic haemorrhage; this in turn causes local laceration of liver tissue and the formation of a subcapsular haematoma; finally, the capsule of the liver may rupture and blood escape into the peritoneal cavity.

Such intrahepatic haemorrhage, they suggest, may be caused by a variety of conditions—for example, vascular disease, necrosis of the liver associated with septicaemia, or hepatic malignancy. In some cases minimal trauma may cause haemorrhage in diseased liver comparable with the haemorrhage that is known to occur in the diseased spleen.

Abercrombie's (1843–4) case, to which reference has already been made, was associated with pregnancy. He gives a vivid account of a woman aged 35 who suffered from epigastric pain, abdominal distension, and belching at the eighth month of pregnancy. He says of the patient: "Having had frequent attacks of gastrodynia on former occasions, she, of her own accord, had immediate recourse to pressure for relief; and placing a silk handkerchief round her body she desired one of her servants to pull it as tight as she possibly could. The wish was complied with, but to an extent that made me fear some injury under existing circumstances. I therefore begged it might be removed. I then prescribed for her a draught composed of Calcined Magnesia, Liquor Opii Sedativus, Spt. Ether, Sulph., and Aq. Cinnamomi, to be taken immediately, and ordered hot fomentations to the epigastrium. By these means the pain gradually abated." A few hours later labour began and was soon followed by the successful breech delivery of the foetus. An hour after the expulsion of the placenta the patient collapsed. Haemorrhage was suspected, but there was no evidence of its coming from the birth canal. Two days later the patient died, and a post-mortem examination revealed a large unruptured subcapsular haematoma on the superior and anterior surfaces of the liver.

Abercrombie was of the opinion that the damage to the liver might have been caused by the tight bandaging, but that haemorrhage did not occur until the pressure of the gravid uterus on the upper abdomen had been removed. He also put forward an alternative suggestion that haemorrhage took place in a liver that was already so diseased that it was readily injured by the muscular compressions of labour.

Alessandri (quoted by Rademaker, 1943), writing on this subject, agrees that rupture of the liver may occur as the result of violent muscular activity during parturition or during epileptic seizures, but he gives no case report or reference to support his views.

Rademaker (1943) describes the case of a woman aged 32 admitted to hospital in the eighth month of pregnancy with a blood pressure of 260/160 and albuminuria. After a severe bout of vomiting she became collapsed and the diagnosis of a ruptured uterus was made. At operation a rupture of the liver (the exact site is not specified), with blood in the peritoneal cavity, was found. The haemor-

rhage was controlled by a pack, and after a stormy convalescence the patient recovered. In this case hypertension was thought to be the cause.

Rademaker submits the interesting suggestion that sudden death during eclampsia may sometimes be due to a ruptured liver. We doubt, however, whether this speculation can be sustained, for, although scattered areas of necrosis and *small* subcapsular haemorrhages are not infrequently found in eclampsia, severe haemorrhages of the liver are not a feature of this disease.

Links (1946) describes a case of rupture of the liver during the fourth month of pregnancy. The patient developed acute abdominal pain with signs of blood in the peritoneal cavity. At operation the blood was found to be coming from the foramen of Winslow. On exploring the lesser sac a laceration of the caudate lobe of the liver was seen; the liver tissue itself appeared to be normal. Haemostasis was effected by covering the site of bleeding with muscle tissue. The patient made a good recovery. The cause of the liver damage was obscure, but Links suggests that it may have been due to a transient hypertension.

Conclusion

We have been able to trace three cases of ruptured liver associated with pregnancy, two of which survived as the result of operative intervention. To these three cases we have added a fourth, in which also the patient recovered after surgical treatment.

We believe that in our case the injury was the result of trauma produced by violent contraction of the diaphragm and abdominal muscles during labour. But it is interesting to note that there was also an element of toxaemia, evidenced by the raised blood pressure (found after the initial shock had been overcome) and by the presence of albuminuria. It is probable that this toxaemia produced changes in the liver, making it particularly liable to injury. (The complaint of epigastric pain for one month before parturition and the report on the liver biopsy obtained at the time of operation strengthened this suggestion.) There was, in our case, no evidence of syphilis or other constitutional disease.

Regarding operative treatment, we believe that the application of "oxycel" gauze, fibrin foam, or muscle tissue is preferable to suture. It is also obvious that blood transfusion is an indispensable part of the treatment. Our patient's satisfactory recovery bears out the statement of Rademaker that in cases of liver rupture operation affords a good chance, and probably the only chance, of survival.

Summary

A case is reported of rupture of the liver, with haemoperitoneum, occurring in association with parturition. Only one comparable case has been found in the literature.

The immediate cause of the rupture was probably the muscular compression that occurs with the expulsive efforts of labour. A predisposing factor may have been the presence of liver damage brought about by pregnancy toxaemia.

The use of the term "spontaneous" rupture is deplored. Liver ruptures may be divided into two main groups: traumatic rupture and hepatic apoplexy—the first usually affecting a healthy liver and the second occurring because of haemorrhage in a pathological liver. A subgroup may be added in which minimal trauma causes rupture of a pathological organ. The case reported may be regarded as an example of this subgroup. This classification of liver rupture might usefully be applied to ruptures of the spleen.

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Medical Memorandum

Treatment of a Chronic Typhoid Carrier with Chloromycetin

Good clinical reports upon the use of chloromycetin in the treatment of typhoid fever have naturally aroused interest in the possibility of dealing with the chronic typhoid carrier by similar means. Unfortunately there is no literature available on the efficacy of this form of treatment; nevertheless as a suitable case had recently come under our care it was decided to try the effect of the substance in doses which had been successful in dealing with the acute disease.

Case Report

A child aged 9 years, son of a flight sergeant in the Royal Air Force, contracted typhoid fever in Egypt in June, 1948, from which he made a good clinical recovery, though he was left a chronic faecal carrier. He came under our care in the spring of this year. He was a well-nourished healthy-looking boy. His stools consistently yielded a heavy growth of *Salmonella typhi*, though over 40 specimens of urine were sterile. *In vitro* sensitivity tests with the isolated organism showed it to be very susceptible to traces of chloromycetin: dilutions in excess of 2.5 μg. per ml. inhibited bacterial growth. It was decided to follow a therapeutic course which had been successful in treatment of the acute disease in the adult, using 19.1 g. of chloromycetin in 8.1 days. As the child weighed 4 st. 7 lb. (28.5 kg.) it seemed appropriate to give half the adult dose, which was administered orally in 0.25-g. capsules four-hourly day and night for seven days—a total of 10.5 g. Stools were cultured on alternate days while undergoing treatment, and we were disappointed to find the organism present in all of them: failure was evident before treatment was completed. In view of this finding, a second course, using three times the dose, was instituted—viz., 0.75 g. for seven days (total, 32.25 g.). Stools became negative almost immediately after starting treatment and remained negative until two days after withdrawing treatment, after which he continued to excrete the organism daily in his stools.

While undergoing the course of treatment his blood serum inhibited growth of the isolated organism in dilutions rising from 1 in 2 on the first day to 1 in 32 by the third day. This inhibition of growth disappeared 16 hours after the last dose of chloromycetin was given.

Comment

Chloromycetin in doses of 30 mg. per kg. of body weight for seven days has failed to eliminate the organism in a chronic faecal typhoid carrier. This dose is about three times that which has been successful in treatment of the acute disease. The cause of the failure is not clear, especially in view of the marked sensitivity of the organism to chloromycetin *in vitro*. It is possible that much heavier doses for longer periods are advisable. Further clinical trials are necessary before any conclusions can be drawn regarding the efficacy of the substance in treating the chronic faecal carrier.

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In a referendum the Swiss electorate has rejected by a proportionate majority of three to one a controversial law to make *x*-ray examinations and tuberculosis treatment compulsory. The draft law (according to a *B.U.P.* report) provided for the periodic examination of the population for tuberculous infection, for the compulsory insurance of the poorer classes against the economic effects of tuberculosis, and for removal to an isolation hospital of sufferers who might endanger others. The law would have been costly: besides its insurance provisions, of which part of the cost would have been borne by the Government and employers, the law required the cantons to contribute to the support of poor families when the wage-earner was suffering from tuberculosis and to pay the costs of *x* rays when the family concerned had too low an income to afford them. There would also have been the difficulty that many Swiss peasants have never been, and do not want to be, treated by a doctor. A number of Swiss doctors also criticized the draft law, pointing out that people can hardly be compelled to undergo examination and treatment when there is no acknowledged method of either.

Reviews

PROTOZOAN DISEASES

Laboratory Diagnosis of Protozoan Diseases. By Charles Franklin Craig, M.D., F.A.C.S., F.A.C.P. Second edition. (Pp. 384; 56 illustrations and 7 coloured plates. £1 7s. 6d.) London: Henry Kimpton. 1948.

There are few, if any, workers in the United States who have contributed more to the study of amoebiasis than Colonel Craig, and his chapters devoted to this subject constitute one of the best expositions on the laboratory (and certain clinical) aspects of the condition that can be found in the literature. Over one-third of his book is devoted to this subject, which is considered in seven chapters.

The author gives descriptions of over a dozen methods of cultivating amoebae, but very wisely warns the reader that he should concentrate on one technique, and without dogmatism gives an indication of the methods he prefers.

Not long ago an ex-Service contributor of an article on amoebiasis in the *Journal* mentioned that he *believed* there was a complement-fixation test for amoebiasis. If he reads this book he will see how right he was. Colonel Craig first published the results of his observations on this subject in 1927, and he gives 16 references to other workers up to 1946. Nevertheless, although the test has come of age, it has not, in the reviewer's opinion, reached stabilized maturity. It would be hard to say that it has yet earned a place in the diagnosis of amoebiasis, though Colonel Craig considers that it has. Anyone who proposes to take up work in this line—and there is obviously still room for it—must certainly study this chapter very carefully. The only criticism is that the wartime work at the National Institute of Health has not been given the prominence that it deserves.

There can be no question that a reliable standardized complement-fixation test would be of very great value in this country to-day. During the war hundreds of thousands of our troops were infected with amoebiasis in the India–Burma area; liver abscess is a not uncommon late sequel to this infection; and when this condition is suspected a stool examination is of little value one way or the other. In over 60% of cases amoebae are not found, and when they are found their presence may be incidental. Colonel Craig emphasizes this reason and gives many others—to all of which the reviewer cannot subscribe—for the wider employment of this test.

The other subjects covered are: the leishmaniases, the trypanosomiases, malaria, coccidiosis, and balantidiasis. The author's close contact with South America and South American workers has given him opportunities of which he has taken full advantage in the sections on Chagas's disease, and there is much more information on this subject than is found in most other textbooks on protozoal diseases. The other chapters are useful but not distinguished. It is a useful laboratory textbook for reference purposes.

L. E. N.

DICTIONARY OF GENETICS

Dictionary of Genetics. Including Terms used in Cytology, Animal Breeding and Evolution. Compiled by R. L. Knight, D.Sc., Ph.D., A.I.C.T.A. (Pp. 183. $4.50.) Waltham, Mass., U.S.A.: Chronica Botanica Company. London: William Dawson and Sons. 1948.

Genetics in its earlier years was a highly specialized branch of biology and to a large extent remains so to-day. Its students made up their technical vocabulary as they went along. Sometimes the result was reasonably felicitous, though by no means always: "non-disjunction" stands for a hallowed landmark in the development of the subject, but remains a horrid word. But whether the results were happy or unhappy, the new terms have always been a stumbling-block to those outside the field of genetics, and even geneticists have to pause at times in order to make sure of precise meanings. Different terms have sometimes been coined to describe the same thing, and occasionally a word has been used with different meanings. In short, there is probably no specialty in biology which has so urgently demanded a dictionary. That dictionary has now been produced, and an admirable volume it is. It is complete—few genetic terms indeed can have escaped definition; the definitions are brief and lucid; there is ample use of cross references. Dr. Knight has produced a volume which with slight revision in subsequent editions, should remain the standard work for many years to come. It should be included in every biological library.

Dr. Knight has, probably wisely, not felt that it is any part of his task to be critical. He accepts the words in use, even which were previously in use, and defines them all. One hopes, however, that in the second edition, perhaps after studying the reactions of geneticists to the first, Dr. Knight may be able to guide his readers to the better use of words. He may indicate, for example, that certain alternatives are to be preferred to others, or that certain terms are unnecessary and should not be employed. I have detected only one downright mistake. It is a pity that Dr. Knight gives the sanction of his dictionary to the word "expressivity." The correct word is "expressiveness"—the only form given in the *Oxford Dictionary*. Similarly, the *Oxford Dictionary* gives "recessiveness" and not "recessivity," though Dr. Knight, less than complete fair once, does not give either.

There are a few brief appendices. One, on the international rules for symbolizing genes and chromosome aberrations, is particularly useful. A number of statistical formulae are also included. It is perhaps helpful to have the more purely genetical of these in this volume, but one questions the necessity of including such familiar formulae as those for the correlation coefficient or the standard deviation, given, at that, in a form inconvenient for practical computation. This is a trivial point, however, and this book can be recommended very warmly indeed.

J. A. FRASER ROBERTS.

NEUROPATHOLOGY FOR STUDENTS

Atlas of Neuropathology. By Wm. Blackwood, M.B., F.R.C.S.Ed., T. C. Dodds, F.I.M.L.T., F.I.B.P., F.R.P.S., and J. C. Sommerville, A.I.M.L.T. With foreword by Professor A. Murray Drennan, M.D., F.R.C.P.Ed., F.R.S.Ed. (Pp. 199; 262 illustrations. 35s.) Edinburgh: E. and S. Livingstone. 1949.

Expositions of pathology in atlas form appear popular to-day. In no branch is such presentation better justified from the student's point of view than in neuropathology, because fixation of the brain in bulk is usually essential for a satisfactory demonstration of most lesions. But the brain thus becomes divorced from the rest of the necropsy findings, to the detriment of teaching. The atlas carries the additional advantage of being a method for bringing microscopical demonstration into conjunction with the naked-eye appearances. In the present work Dr. Blackwood has enjoyed the expert technical help of Mr. Sommerville and the photographic skill of Mr. Dodds. The result is a satisfying display of most of the commoner pathological conditions in the nervous system. Many of the most successful illustrations are in colour, and of these the examples of meningitis are specially commended as life-like representations. In addition to photographs a considerable number of explanatory diagrams have been included.

The general arrangement of the subject matter follows that of Professor J. H. Biggart's *Pathology of the Nervous System*, which, as one of the shorter treatises on this subject, is unsurpassed. The student is recommended to use this or one of the fuller texts in conjunction with the atlas, since Dr. Blackwood's supplementary notes are in most instances brief. This advice is given in the preface.

DOROTHY S. RUSSELL.

PATHOLOGY FOR STUDENTS

Essentials of Pathology. By Lawrence W. Smith, M.D., F.C.A.P., and Edwin S. Gault, M.D., F.C.A.P. With foreword by the late James Ewing, M.D. Third edition. (Pp. 764; 740 illustrations. $12.00.) Philadelphia and Toronto: The Blakiston Company, 1012 Walnut Street, Philadelphia. 1948.

The first edition of this book was to a large extent an experiment. To quote the foreword, written by James Ewing, it was a serious attempt "to take the teaching of pathology out of

the realm of abstract philosophy and make it an effective force in the professional equipment of the medical student." The method employed was to illustrate the basic text, which was that of a standard textbook, with carefully selected case-histories, complete with histological, clinical and *x*-ray photographs. Almost every illustration in the book was therefore related not only to the text but to a clinical account of an actual case. The business of correlating the academic pathology of the textbook with clinical observation is for the most part left to the student himself, and this book was the first serious attempt to help him materially in this most difficult task.

The second edition was considerably expanded to deal fully with the principles of general pathology. This greatly added to the value of the book. The number of case reports was reduced by omitting those in which most of the clinical detail was irrelevant to the pathological condition under discussion.

In this, the third edition, the case-history method of teaching has been preserved and the book has lost none of its individuality. Many illustrations have been replaced and sixty-one new ones added, and wherever feasible the case-histories have been condensed. There has been some judicious pruning, and the page size, weight, and number of pages have been reduced. This book will be read with interest and profit by both junior and senior students.

GEOFFREY HADFIELD.

ESSAYS ON ANAESTHESIA

Anaesthesia for the Poor Risk, and Other Essays. By William W. Mushin, M.A., M.B., B.S., F.F.A.R.C.S., D.A. Being included as No. 49 in the American Lecture Series. (Pp. 65. 7s. 6d.) Oxford: Blackwell Scientific Publications. 1949.

In these days of hurry and bustle it is refreshing to note that someone has had time to write a book of essays on a medical subject. The author is to be congratulated on having had the time and ability to sit back and survey the field on anaesthesia from a detached and objective viewpoint. Nowadays it is all too easy for the busy anaesthetist to be so preoccupied with the details of complicated techniques which may be essential to cope with the demands of difficult operations that he loses his sense of proportion and cannot see the wood for the trees. It is salutary to escape for a time from the cramping effects of individual problems and to gaze on the wider aspects of modern anaesthetic practice and teaching.

Dr. Mushin does this in twenty-eight short essays which can be read through at one sitting. The title of the book refers only to the first essay and is thus somewhat misleading. Actually, an immense range of subjects is discussed, and while some readers may not always agree with the author's views on certain controversial matters they will enjoy his method of "debunking" many popular fallacies held not only by some anaesthetists but also by not a few of the less progressive physicians and surgeons.

C. LANGTON HEWER.

Professor E. F. Du Bois in his *Fever and the Regulation of Body Temperature* (pp. 68; 10s. 6d.; Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications, 1948) gives an excellent survey of the field while sparing the reader the confusion and detail which abound in the voluminous literature relating to thermal regulation. As a professor of physiology, a notable experimenter, and an authority on the topic, Du Bois is well fitted to present this American lecture in physiology. It should be equally appreciated by the student freshly introduced to this subject and the graduate interested in the question of body temperature. The author presents the difficulty of comprehending a "normal" body temperature, with its extensive gradients and fluctuations. The relation between heat production and heat loss with varying environmental temperatures is analysed to show the relative parts played by radiation, convection, and vaporization. The normal balance is compared with that in exercise and in disease, with special reference to the skin, clothing, chills, and tissue metabolism. As one would expect, clinical aspects are not stressed; but clinical details are used for illustration and mention in connexion with fever, fever therapy, cold therapy, and the management of febrile patients. The lecture is short and easy to read, with helpful diagrams and adequate references to original works of significance. "There is much to be learned about fever," but this is an interesting and stimulating précis of what is known.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Sir William Gowers. By Macdonald Critchley. (Pp. 118. 17s. 6d.) London: Heinemann. 1949.

The first biography of the pioneer neurologist.

A Companion in Surgical Studies. By I. Aird, Ch.M., F.R.C.S. (Pp. 1,060. 63s.) Edinburgh: E. and S. Livingstone. 1949.

For the trainee specialist in surgery.

Psychological Aspects of Clinical Medicine. By S. Barton Hall, M.D., D.P.M. (Pp. 416. 21s.) London: H. K. Lewis. 1949.

For medical students.

Science for Peace and Socialism. By J. D. Bernal and M. Cornforth. (Pp. 86. 2s. 6d.) London: Birch Books, Ltd.

Describes, among other topics, adverse effects of capitalism on science.

Official History of the War Organisation of the British Red Cross Society and the Order of St. John of Jerusalem. Compiled by P. G. Cambray and G. G. B. Briggs. (Pp. 723. No price.) London: The Red Cross Society and Order of St. John of Jerusalem. 1949.

An account of the extensive and varied wartime work of these two organizations.

Modern Treatment Yearbook, 1949. Edited by Sir C. Wakeley, K.B.E., C.B., D.Sc., F.R.C.S., F.R.S.Ed., F.A.C.S., F.R.A.C.S. (Pp. 338. 15s.) London: The Medical Press. 1949.

Contains 41 articles on present-day treatment.

The Hadamar Trial. Edited by E. W. Kintner. (Pp. 250. 18s.) War Crimes Trials Series. London: William Hodge. 1949.

The trial concerned the deaths of some 400 persons by hypnotic drugs.

The Science and Art of Joint Manipulation. By J. Mennell, M.A., M.D., B.C. Vol. 1. 2nd ed. (Pp. 215. 24s.) London: J. and A. Churchill. 1949.

The first new edition since 1939.

The Story of Scabies. By R. Friedman, M.D. Vol. 1. (Pp. 468. $7.50.) New York: Froben Press. 1947

The first of four volumes of an exhaustive work on scabies.

Thorpe's Dictionary of Applied Chemistry. Edited by M. A. Whiteley, O.B.E., D.Sc., F.R.I.C. 4th ed. Vol. 9. (Pp. 671. 80s.) London: Longmans, Green. 1949.

Comprises the sections Oils–Pituitary.

Diseases of the Adrenals. By L. J. Soffer, M.D. 2nd ed. (Pp. 320. 32s. 6d.) London: Henry Kimpton. 1948.

The comparatively recent first edition has been brought up to date.

Duodenal Ulcer. By J. Ruesch, M.D. (Pp. 118. 22s. 6d.) London: Geoffrey Cumberlege. 1948.

Results of an investigation among civilians and naval personnel.

Bailey's Textbook of Histology. By P. E. Smith, Ph.D., and W. M. Copenhaver, Ph.D. 12th ed. (Pp. 781. 38s. 6d.) London: Baillière, Tindall and Cox. 1948.

For first-year medical and dental students.

Estudos sobre la Imunidade Cruzada. By P. de Góes. (Pp. 352. No price.) Rio de Janeiro: Rodrigues. 1947.

Studies in cross immunity.

Les Acquisitions Médicales Récentes. By R. Debré and others. (Pp. 296. 1,100 francs.) Paris: Flammarion. 1948.

A collection of twenty papers.

Childhood Mortality from Rheumatic Fever and Heart Diseases. By G. Wolff, M.D. (Pp. 63. 25 cents.) Washington: U.S. Government Printing Office. 1948.

A short statistical survey covering a three-year period in the United States.

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TUBERCULOSIS IN INDUSTRY

Many of the theories put forward to explain the prevalence of tuberculosis in certain industries are accepted as facts on insufficient evidence. For instance, it is commonly believed that the tuberculous person must be provided with open-air employment, but the experience gained at Papworth Settlement and the British Legion Village at Preston Hall has shown that such conditions of employment are not only unnecessary but are often harmful owing to the strenuous nature of the work and poor working conditions, including exposure to all kinds of weather. Certain trades, too, have been condemned as being unsuitable for the tuberculous on the grounds that there is a high mortality from tuberculosis among the workers. The few studies made on this problem have shown that an increased incidence of tuberculosis among employees often has little connexion with the manufacturing process but is mainly due to domiciliary and industrial environment. A good example of such a trade is that of printing, which when carried out under proper conditions, as found in the workshops of industrial settlements, is one of the most suitable occupations a tuberculous person can follow.

The high death rate from tuberculosis among workers in the boot and shoe industry has been known for over 50 years. The Medical Research Committee (forerunner of the Medical Research Council) published a report[1] on the subject in 1915, but beyond confirming that there was more pulmonary tuberculosis among workers in this industry than in the general population they were able to put forward only conjectures about the cause. In 1947 Smith[2] published the findings of the mass-radiography survey in Northamptonshire, and again the statistical evidence showed that there was a higher proportion of workers with active tuberculosis in the boot and shoe industry than in other industries in the county. The report by Drs. Alice Stewart and J. P. W. Hughes which appears elsewhere in this issue is a direct outcome of the mass-radiography survey—the work having been undertaken at the request of the industry.

Drs. Stewart and Hughes first turned their attention to proving or disproving two of the commonly accepted opinions about the workers in the boot and shoe industry —that many men of poor physique are employed, and that there is a strong family tradition in the industry, with the result that two or more members of a family are often employed in the same factory. From the figures studied they concluded that more men of subnormal physique are employed in the shoe factories than in most other occupations, and that there was some indication that the shoemakers are more often interrelated than other factory workers in the area and are more frequently exposed to tuberculous infection in their homes.

The next step in the investigation was to find out whether infection was spread in the factories, and, if so, how it was spread. The incidence of tuberculosis in those employed in factories of different sizes was studied, and it was found that the overall rate of infection was considerably higher in large factories than in small ones. Having satisfied themselves that the difference was not due to the large factories employing workers whose age and sex constitution differed from those in small factories, Drs. Stewart and Hughes then compared the working conditions in the large and small factories from reports supplied by factory inspectors. The information obtained was valuable. In 24% of the factories with fewer than 200 operatives the working conditions were not altogether satisfactory, whereas in all the factories with more than 600 operatives the working conditions were well above the average standard. But the study of the results obtained in the mass-radiography survey showed that the incidence of tuberculosis was over four times as great in the large factories with "good" conditions of work as in the small factories where the conditions were not so good.

In a large community more people are at risk than in a small community, and Drs. Stewart and Hughes's investigation of the factories according to the number of operatives per room suggests a probable explanation for the difference in the incidence of tuberculosis in large and small factories. All the large factories had more than 60 operatives per room, and 80% of the small factories had fewer than 20 per room. Drs. Stewart and Hughes are careful to state that further work will have to be done before they can be certain that the size of the working unit is the core of the problem. It is clear, however, that workers with active tuberculosis could cause much harm among the young employees from rural areas who are non-infected when they take up work, especially if resistance to infection is lowered by unsatisfactory nutrition, overfatigue from long journeys to and from work, and poor living conditions. In fact, infectious persons working in a room with 60 or more employees may be the cause of local epidemics of tuberculosis. Such an epidemic in a school in Copenhagen was reported by Hyge[3] in 1947 and referred to in an annotation in the *Journal*[4] some months ago.

The boot and shoe industry is to be congratulated on its admirable collaboration in this important pioneer research. The report now published is a preliminary one and is concerned with conditions in only part of one industry; from the evidence so far collected it would be unreasonable to deduce that in the shoe industry the incidence of tuberculosis is greatly different from that in many other industries. For all we know, similar working conditions in other industries are as likely to favour the spread of tuberculosis among the workers. Surveys carried out at Uxbridge,[5] Oxford,[6] and Hull[7] have shown that considerable numbers

[1] First Report of the Special Committee upon the Incidence of Phthisis in Relation to Occupations, 1915, London.
[2] *Med. Offr.*, 1947, **77**, 109.
[3] *Acta tuberc. scand.*, 1947, **21**, 1.
[4] *British Medical Journal*, 1948, **2**, 346.
[5] *Tubercle*, 1946, **27**, 114.
[6] England, N. J., ibid., 1946, **27**, 207.
[7] Hardy, R., ibid., 1948, **29**, 8.

of tuberculous persons are employed in factories of many types. The boot and shoe industry, by asking for an investigation, by giving every assistance, and by encouraging publication of the findings, has set an example to industry as a whole. Furthermore, by submitting their problem to investigation they have made the best progress possible towards its eventual solution.

VOLUNTARY ACTION IN WAR

The British Red Cross Society and Order of St. John of Jerusalem are to be congratulated on the prompt appearance of the official history of their Joint War Organization.[1] It is a document of more than passing interest, for it illustrates on a gigantic scale the nature of the problems which arise in the integration of voluntary and governmental activities in conditions of emergency. The initial aim of the "Red Cross movement"—embodied in the first Convention of 1864—was to ameliorate the conditions of the wounded and sick in armies in the field. Other objects, added later and without weakening the primary purpose, have included the care of prisoners in time of war, the improvement of health, the prevention of disease, and the mitigation of suffering. The Red Cross and St. John organizations in this country became the national representatives of a movement which in its ideals is supranational and in privileges international—with the notable exception of Japan in the last war.

Inevitably the first impression gained from this record is the size of what was done. The Joint War Organization began the war with a fund of £2,000, contributed equally by its parent bodies. It ended with an expenditure of £64 millions—the largest charitable fund ever collected in Great Britain. Of this enormous sum, over £20 millions came from penny-a-week collections, which from January, 1944, onwards were yielding £500,000 or more per month. On the disbursement side, £51 millions was spent on current war services during the lifetime of the organization, and the balance of £12¼ millions was handed over to the parent bodies for expenditure over a longer period for purposes permitted by the War Organization. A rough indication of the scope of the different services provided can be obtained from the outlay on them. Services for the wounded and sick of British and Empire Forces absorbed £17 millions; for British and Empire prisoners of war, £14 millions; for Allied Forces, £5 millions; and for civilian relief overseas, £3 millions.

The record neither conceals nor over-emphasizes the difficulties which arose. It was a general and logical policy that, whereas it was for the Service and civilian departments to provide for basic needs, it was the business of the War Organization to supplement. In addition to comforts, this included on the hospital side "additional stores . . . ambulances, *x*-ray apparatus, and the like . . . convalescent hospitals for officers, and convalescent homes and auxiliary hospitals for other ranks." From the nature of this specification it can be judged that there was often considerable uncertainty about the extent of the task confronting the War Organization. For example, by March, 1940, the War Organization had 20 ambulances in France—the intention being that Army ambulances should be relieved for work in the forward areas. By the middle of May the D.M.S. was pressing the Commission in France for further ambulances; but when the existing vehicles were abandoned and their personnel evacuated in the following months the negotiations with the War Office, which were begun in the preceding November, were still not concluded. In June of the same year—the time of Dunkirk—an offer of 100 ambulances was made and accepted for service with the Home Forces, and by December, 1941, the total was 239. In the evidently delicate matter of supplies to Service hospitals it took some months before "the happy medium" was reached. This was an arrangement by which a D.D.M.S. might forward indents directly to the War Organization and which officially encouraged liaison with "Red Cross" officers in Commands. It was at first thought that motor *x*-ray units would not be required: later a request was made for 20.

In the provision of additional hospital and convalescent facilities there was a precedent from the 1914–18 war, when "an extensive system of auxiliary hospitals . . . for officers and other ranks" was established. It was at first suggested that convalescent homes for officers would be all that was needed, and that six with about 100 beds each would be sufficient. In March, 1940, it was stated on behalf of the Ministry of Health that the War Organization would probably not be asked to establish auxiliary hospitals. Later the War Organization was asked to "obtain, adapt, and equip suitable buildings as convalescent homes for other ranks," with a target first of 10,000 beds, then 20,000. Later still it appeared that "as between auxiliary hospitals and convalescent homes there would be little or no difference of staffing and equipment"—due, in part, to great emphasis on rehabilitation. The directory of convalescent homes and auxiliary hospitals, as finally established, runs to six closely written pages in an appendix to this volume. The number of beds equipped reached 14,000, that of beds occupied just over 8,000—a by no means insignificant addition to total hospital services.

The failure of the Japanese Government to abide by its undertaking to observe the provisions of the Prisoners of War Convention—which, however, it had never ratified—was the outstanding and tragic feature of the prisoner-of-war services. In the "occupied territories" the Japanese High Command was "the sole unquestionable authority." This explanation cannot, however, be invoked in the case of Japan itself. Notification of camps was not made to the delegates of the International Red Cross Committee; and, where only forty-two prisoner-of-war camps had been known, there were found after the surrender to be more than one hundred. Similarly, "information about the receipt of relief came almost wholly from prisoners themselves after their liberation": there were no camps where more than irregular, and even solitary, issues had been made, but when concealment was no longer possible "quantities of relief supplies were brought to light."

Other services can be mentioned only briefly. Those for British civilians raised a number of problems without precedent. In this category were members of the Forces

[1] *The Official Record of the Humanitarian Services of the War Organization of the British Red Cross Society and Order of St. John of Jerusalem, 1939–47.* Compiled by P. G. Cambray and G. G. B. Briggs. Foreword by Field-Marshal Lord Wavell. London: Red Cross and St. John, 1949.

"detained" without recognized status in Vichy France. Then there was the flow of refugees, including many British, through Spain; the position created by the "liberation" of the Channel Islands (an experience without precedent in modern British history); and, last but not least, the problem of immediate air-raid relief. Experience certainly proved that a voluntary organization with power to act locally could be most useful to the public after air raids. All these and other needs were met successfully, and after varying degrees of difficulty, by the War Organization—with time over to send a hospital to China, arrange the substantial shipments of goods purchased with the Aid-to-Russia Fund, and assist in the tracing of displaced persons.

In all that the War Organization accomplished there is the same impression of flexibility, readiness to serve, and determination to uphold its own independence as part of the Red Cross movement. On this last point the record ends with the following clear statement of attitude:

> "By its firm stand for these principles, in spite of temptations to take the easier course, the Red Cross and St. John War Organization obtained recognition and acceptance of the qualities of independence, impartiality, and neutrality upon which the whole Red Cross movement depends for its effectiveness. In addition, it proved conclusively that the value of a national Red Cross Society to the nation and to the Government is measured by its independence within its own sphere and by its complete freedom from political entanglements."

There were occasions, as is admitted, when this policy was misunderstood. But such misunderstandings as arose were temporary and remediable, whereas the ideal defended is of lasting value.

THE GOVERNMENT'S PREROGATIVE

Under Clause 12 of the Amending Bill any difference or dispute about the remuneration or working conditions of doctors in the Health Service is deemed to be one to which the Conciliation Act of 1896 applies, and to be a trade dispute within the meaning of the Industrial Courts Act of 1919. Under this clause the Minister of Labour is empowered to refer disputes to an industrial court for settlement or for advice. The arbitration would be carried out by one or more persons appointed by him or in accordance with the Industrial Courts Act. Whether the Minister of Labour does refer any particular dispute for settlement rests with him—not the profession. It is therefore unlikely to afford doctors much protection, though it may bring one small benefit. While a Minister could readily refuse to refer a dispute for settlement, he might hesitate to refuse to seek advice, and if the advice went against him he might find it difficult to tell Parliament that the matter should rest unchanged. Resort to arbitration has become a well-established tradition in this country during the last 30 years, and a Minister who, flouting tradition, refused arbitration outright in any form would risk losing the esteem of a nation that adheres to its traditions tenaciously.

This provision in the Bill falls short both of the profession's demands and of what it has been promised. The profession and the Minister of Health have agreed that Whitley Council machinery would be appropriate for settling disputes, and no one doubted until recently that compulsory resort to arbitration would be available af discussion failed to settle a dispute on questions remuneration. After casting doubt on whether essential feature of the relationship between the profess and the Ministry will necessarily be allowed to operate disputes about remuneration, the Minister seems to ha offered a procedure that still excludes compuls arbitration.

The industrial courts were designed to settle dispu between employers and workmen, the employers be private individuals or organizations—not the State. T Government had no direct pecuniary interest in the terms settlement; if more money had to be paid out for wages the result of arbitration the firm did the paying and t Government congratulated itself on the restoration industrial peace. The Minister of Labour had no ne to hesitate in setting up machinery to resolve conflicts this kind. But in the Health Service the Minister of Hea is virtually the employer, and no doubt a Minis of Labour would attach great importance to anythi his colleague might say. A Minister of Health mig well suggest to a Minister of Labour that a dispute oug not to be allowed to go to arbitration for settlemen Other interested Ministers, including the Chancellor the Exchequer, might give their advice.

In any case the decision rests with the employer's side, position that cannot have been in mind when the machine was devised. It is quite unsuitable for regulating rel tions between the State and its employees. The Labou Party's aim has always been to prevent the exploitatio of employees; it is a strange anomaly that the Governme should now consider denying the medical profession t particular instrument necessary to avoid that exploitatio

THE LOCK HOSPITAL

Within three years of its bicentenary the well-know London Lock Hospital is threatened with closure. Th threatened closure does not seem to be related to the cu in expenditure on hospitals demanded by the Minister o Health, but is part of a plan for reorganization now bein considered by the North-West Metropolitan Hospital Board This Board, we understand, has already discussed th matter and will continue a postponed discussion within th next week or two. It is to be hoped that those with whom the decision lies will not think lightly of abolishing a institution which has served a section of the community in London for over two hundred years and whose work i unlikely to be as well done by any other hospital in anothe area under the control of the Board.

The Lock Hospital was founded in 1746 by Willian Bromfeild, surgeon to St. George's Hospital, for the treat ment of venereal disease in the West End. The hospita was transferred to its present site in Dean Street, Soho, i 1862, and it is its position in this part of London which makes its services indispensable and, we believe, irreplace able by any institution elsewhere. Soho is the foreig quarter of London and a topographical focus of venerea infection. The Lock Hospital, therefore, has a uniqu experience of these diseases and, what is perhaps a important, of dealing with the prostitutes who seek its help Outcasts from society, they know that they can go to th hospital and be treated with sympathy and consideratio

by those who work in it—an important aspect of the treatment of a social disease. If the hospital were to be shut down and its work were to be undertaken by the expanding department of another institution, it is probable that those needing treatment would be disinclined to receive it in a place unfamiliar to them and one possibly not so convenient of access.

It is easy to destroy what has been built up by years of self-sacrificing work, but it is far more difficult to construct a substitute. To remove the London Lock Hospital from Dean Street would be an act of medical vandalism and disservice to a peculiar part of London's population. One result of this might well be an increase in venereal disease in the West part of London.

VITAMIN E

During the 10 years since the first International Conference on vitamin E, which was held in London in April, 1939, research on this vitamin has advanced rapidly. The conference which recently gathered in New York (see p. 951) has therefore served a useful purpose in co-ordinating information collected over a long period in hospitals, laboratories, and veterinary research stations. The time has now long passed when vitamin E was regarded as being exclusively, or even mainly, associated with reproduction. Its part in preventing experimental muscular dystrophy was clearly recognized 10 years ago, and since then little further knowledge has been gained about this function. Recently, however, Schwartz in Germany and György and Hove in the U.S.A. have made the important observation that the vitamin protects the livers of experimental animals from injury caused by various forms of dietary deficiency or abuse. This property may be readily demonstrated in rats given diets grossly deficient in protein, but the vitamin is equally effective in preventing injury when large amounts of cod-liver oil or small doses of carbon tetrachloride or other organic solvents are administered. In another promising field of research Kaunitz has found that the prolonged oestrous cycles of elderly female rats may often be corrected by giving tocopherol in amounts greatly in excess of those required by younger animals. In farm animals deficiency of vitamin E, occurring under natural conditions, is known to cause muscular stiffness in young lambs; and experiments have shown that bovines appear to be liable to sudden death when given diets deficient in the vitamin.

In animals, therefore, it is plainly recognized that vitamin E is necessary for the function of many different organs and tissues. Evidence of its importance in the human is much less conclusive, though Quaife and her colleagues have demonstrated that several grammes of the vitamin are normally present in the adipose tissues. Claims by E. V. and W. A. Shute, however, that large doses of vitamin E are beneficial in heart diseases, in vascular diseases such as thrombophlebitis and thromboangiitis obliterans, and even in the treatment of severe burns or frost-bite, have now repeatedly been contested. Some workers have reported complete failure in controlled clinical tests, while others have pointed out that in some of the conditions mentioned spontaneous cures or remissions were only to be expected. Claims have also been made recently that tocopherol may be valuable in the treatment of diabetes and of rheumatic diseases, and the cure of Dupuytren's contracture and the alleviation of Peyronie's disease (penile induration) have been reported. The multiplicity of the conditions in which vitamin-E therapy is said to have been successful, and the failure of conscientious observers to confirm the most important of these claims, may cause sceptics to wonder whether after all vitamin E has any genuine clinical significance. Excessive enthusiasm on the part of the advocates of indiscriminate tocopherol therapy, however, should not be allowed to cast doubts on the impressive work already done in studying the action of the vitamin in experimental animals. Intelligently planned and carefully controlled clinical investigations will be necessary, particularly in those diseases which have points in common with the various effects of experimental vitamin-E deficiency, before a final decision is reached about the value of tocopherol in human medicine.

SELECTION OF UNIVERSITY STUDENTS

According to a report in the *Sunday Times*[1] only one in twelve of the applicants for admission to Cambridge next October will be accepted. This illustrates the size of the task of selection which confronts all the universities. The problem is discussed in a recent pamphlet published by P E P.[2] At Oxford and Cambridge the colleges manage to interview all students before they are accepted, but many of the other universities have to select their students without interview because of their inability to handle the numbers. At Manchester, for instance, all medical and social science students are interviewed, but only about a quarter of the history students. The P E P pamphlet, which rightly insists that the responsibility for the selection and admission of students must rest in the hands of the universities, suggests that the latter should devise some preliminary hurdle to reduce the field to manageable proportions, and that they should then bring efficient methods of selection to bear on the remainder.

In our educational number three years ago Dr. D. H. Smyth[3] described in detail the principles which should govern the selection of medical students. In a leading article in the same issue we made a plea for the more general use of the scientific methods advocated by Dr. Smyth and suggested that the medical schools might appoint selection boards on similar lines to the boards which select candidates for the Civil Service or for commissions in the armed Forces. Obviously the result of written examinations will always be important in the assessment of a candidate's knowledge, but a modification of the selection-board system might also be useful in the universities, not only for the purpose of selecting the best applicants, but with a view to obtaining information which could be used to help the student throughout his university career.

P E P believes that if the universities concentrate on selecting the right students the question of the payment of fees and maintenance can be left to others (presumably the State and local education authorities). The statement in the pamphlet that "the standard of admission should be the same for fee-payers as for scholarship holders" has led to a lively correspondence in *The Times*. On one side are those who regard with misgiving the prospect of nationalized university education. Sir Ernest Barker,[4] for instance, wrote that he could not agree with any proposal which would have the effect of filling our universities only with scholarship winners. Supporting him, Lord Elton[5] wrote, "A university should be a universe in miniature, housing all sorts and conditions—men from homes of old culture, pagans and Christians, future professors, and embryo men of business—all of whom, by the process of mental cross-fertilization, are likely to benefit from

[1] *Sunday Times*, May 14.
[2] *The University Student*, 1949. Published by Political and Economic Planning, London. Price 2s. net.
[3] *British Medical Journal*, 1946, **2**, 357.
[4] *The Times*, May 7.
[5] Ibid., May 16.
[6] Ibid., May 16.
[7] Ibid., May 20.
[8] *British Medical Journal*, 1948, **2**, 1108.

dissimilar contemporaries." On the other side Professor R. B. Onians[6] pointed out that fees provide a very small part, and endowments and public funds a very large part, of the capital value and running costs of a university, and "justice and the national interest demand that university education be given to those who bring to the university not mere fees but gifts of mind and personality most worthy of development." Professor J. D. Bernal[7] gave it as his opinion that the policy of providing university education for all students who can profit by it will not lead to a lowering of the standard of entrance, and he stated that even with the post-war expansion barely one child in 40 in this country has a chance of university education. "This," he writes, "is one of the lowest proportions in Europe, and a quarter of what it is in the U.S.A."

One method of easing the pressure on the universities was mentioned in the *Journal* recently by Professor L. J. Witts[8] in a review of a book entitled *The Problem Facing British Universities*. The need for more scientists might be met by a more ruthless separation of university and technical education and the creation of more technical colleges. So far as medical students are concerned he suggests that the Oxford and Cambridge practice of preclinical education within the university followed by clinical work in autonomous teaching hospitals may become the pattern for medical education in Britain.

ACUTE INFECTIVE POLYNEURITIS

The cause of acute infective polyneuritis is still unknown, but the signs on which to make a diagnosis are reasonably clear. A mild upper respiratory infection often precedes the onset of the neurological disease. There is a fairly rapid development of symmetrical flaccid paresis, usually starting in the legs and ascending to the trunk and arms, and often accompanied by considerable muscle pain and paraesthesiae. In some cases the paralysis affects the proximal more than the distal muscles of the limbs. Sense of position and stereognosis are frequently more severely disturbed than is cutaneous sensation, though some diminution of sensation over the glove-and-stocking areas can usually be demonstrated. Bilateral facial weakness occurs in a number of cases, but involvement of other cranial nerves, causing palatal and pharyngeal weakness and external ophthalmoplegia, is much rarer. In the majority of cases neurological disability reaches its maximum in two to three weeks or less, and gradual improvement then takes place, with eventual complete recovery.

One of the problems connected with this disease is its nomenclature: a recent review[1] mentions 30 different names which have been given to it. In France and to some extent in the United States the eponym Guillain–Barré syndrome is used, since these authors[2] in 1916 described two cases, stressed the good prognosis, and drew attention to the finding of a high protein content in the cerebrospinal fluid without any increase of cells. Clinical descriptions had been published previously,[3 4 5] but the cerebrospinal fluid findings were not reported. Detailed case histories appeared in British journals in 1917[6] and 1918.[7] The stress which some authors have laid on the albumino-cytological dissociation in the cerebrospinal fluid as a diagnostic point is not justified; in Bradford's[7] cases which were clinically similar to those of Guillain and Barré the protein content was normal, while in such conditions as diabetic and diphtheritic neuritis the C.S.F. protein may be raised.[8 9 10] It is possible, though not yet proved, that the raised protein indicates involvement of spinal roots; it is certainly not indicative of any particular reason for such involvement.

Histological investigations have revealed changes in the anterior horn cells[11] in addition to degeneration in spinal roots and peripheral nerves, and for this reason the term "neuronitis" has been used to describe the disease. No infective agent has yet been demonstrated. Guillain and Barré's views on the invariably good prognosis have not been confirmed, since a proportion of patients die of respiratory paralysis in the acute stage, while in a small number the disease becomes chronic, with long-standing muscle-wasting and weakness. Children are occasionally affected,[12] and in them the prognosis is said to be more favourable than in adults. Acute infective polyneuritis is the commonest cause of the syndrome to which the name Landry's ascending paralysis is sometimes given, though there is some reason[13] to believe that Landry's original patient was suffering from the polyneuritis of acute beriberi, and other pathological conditions such as poliomyelitis and porphyria may cause the same symptoms.

CHLORAMPHENICOL (CHLOROMYCETIN) AND CHOLERA

Evidence is accumulating that chloramphenicol is of value in the treatment of typhoid. Woodward and his colleagues[1] have reported on its use in the Tropics, and Murgatroyd[2] has recently recorded in this *Journal* a case successfully treated with the new antibiotic in this country. Bradley[3] also has given an encouraging preliminary account of its employment under controlled conditions in the epidemic at Crowthorne, in Berkshire. Elsewhere in this issue Rumball and Moore report their lack of success in the treatment with chloramphenicol of a chronic typhoid carrier. Gauld and his collaborators[4] now bring forward evidence to show that chloramphenicol is active against cholera vibrios. Mice injected with cholera vibrios and given chloramphenicol by mouth within two hours of infection were practically all saved—only 3 died of the 120 mice so treated—whereas 25 of 60 mice treated with sulphadiazine succumbed, and 22 of 30 controls given no treatment at all. In the application of these findings to human cholera it must be recalled that it is not possible to reproduce the human disease in laboratory animals. Intraperitoneal injection of large doses of vibrios in mice causes peritonitis and septicaemia, but the vomiting, diarrhoea, and extreme dehydration characteristic of cholera in man are lacking. In human cholera the vomiting might make the administration of the drug by mouth impracticable and it might be necessary to give it parenterally. Indeed, it is probable that if chloramphenicol proves of use in the human disease its principal value may be as a prophylactic during epidemics. In the next outbreak of cholera chloramphenicol should certainly be given to exposed contacts in order to appraise its value for this purpose.

Professor Geoffrey Jefferson, F.R.S., will deliver the Lister Oration on "The Mind of Mechanical Man" before the Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., on Thursday, June 9, at 5 p.m.

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RESEARCH ON VITAMIN E

INTERNATIONAL CONFERENCE

An International Conference on Vitamin E, organized by Professor K. E. Mason, was held recently at the New York Academy of Sciences. About 60 papers were contributed on the morphological lesions in vitamin-E deficiency, the part played by the vitamin in enzyme systems, its protective action in conditions of metabolic stress, its significance in practical nutrition, and its possible value in clinical medicine. While many interesting additions to our knowledge of the mode of action of the vitamin in experimental animals were presented, the conference remained undecided on the efficacy of vitamin-E therapy.

Enzyme Systems

It has long been known that when the muscles of vitamin-E deficient animals are incubated *in vitro* they respire more rapidly than tissues from normal animals. Hickman and others have held therefore that vitamin E has a general role as a "mentor" preventing oxidation in the tissues from proceeding through abnormal channels. Observations that α-tocopherol phosphate inhibits several enzyme systems might seem to support this view, but Ames and Risley have commented that the phosphate radical and not tocopherol may be responsible for the inhibition, while the detergent action of the compound introduces another complication. According to Miller and his colleagues, however, the succinate of tocopheryl has the same effect as the phosphate in inhibiting hyaluronidase, while Zierler *et al.* found that tocopherol in the uncombined form inhibits trypsin. These workers noticed that rats given large doses of α-tocopheryl phosphate become drowsy within a few hours; when they were killed in this condition the rates of oxidation of the tissues *in vitro* were abnormally slow. Boyer agrees with the conclusion that the inhibitory action of α-tocopheryl phosphate on the succinoxidase system of heart and liver is due to its detergent power, and has observed similar inhibition with dodecyl sulphate, a detergent bearing no chemical relation to vitamin E.

Experimental Animals

In middle-aged female rats Kaunitz and his colleagues found that the tendency of the oestrous cycle to lengthen from 4 days to as much as 17 days could often be corrected by giving α-tocopherol in amounts ten to twenty times greater than those required for young rats. The same treatment also improved the fertility rate, which decreased progressively with age in animals receiving normal amounts of the vitamin. On the other hand Telford found that deprivation of vitamin E decreased the incidence of artificially induced lung tumours. Evans confirmed that the muscular dystrophy caused by vitamin-E deficiency was accompanied by neural lesions, with demyelinization of the spinal cord. In reaching the same conclusion Mason found that oxidized lard, although highly toxic to rats, was less active than fresh lard in causing neural lesions. Lecoq and Isidor found changes in the haematopoietic organs of deficient rats which may indicate a defence mechanism against anaemia.

In studying the significance of protein in vitamin-E deficiency Moore found that an adequate casein allowance ensured rapid growth in young rats even when abnormalities in the incisor teeth plainly indicated deficiency of vitamin E. The administration of tocopherol ensured normal teeth even in rats stunted in growth by severe protein deficiency. Interaction between protein and vitamin E was shown by a slight improvement in growth when rats moderately deficient in protein were dosed with tocopherol, and also by a clear superiority in the teeth of rats deprived of vitamin E but given adequate protein as compared with those of animals deprived of both nutrients. Animals survived for long periods on a diet extremely low in protein when tocopherol was administered, but died with massive necrosis of the liver, as described by previous workers, when no vitamin E was given. No liver abnormalities were found in vitamin-E deficiency when the protein intake was adequate; deficiency of protein with the administration of tocopherol caused severe fatty infiltration in the liver in spite of the good general health of the animals. Hove reported that rats deficient in both protein and vitamin E developed zonal necrosis of the liver and fatal lung haemorrhages within two months, and that these lesions occurred after only three to four weeks if the animals were dosed with carbon tetrachloride, benzene, or alloxan. The injuries were prevented by tocopherol or by an adequate protein allowance, but casein oxidized by treatment with hydrogen peroxide was ineffective, as also were cystine, methionine, and tryptophan.

Schwarz claimed that three fundamentally different types of fatal liver injury may be produced in rats (1) by giving a diet containing casein treated with alkali, (2) by feeding large amounts of cod-liver oil, or (3) by using dried yeast, which is deficient in sulphur-containing amino-acids, as the source of protein. When cod-liver oil was given in conjunction with yeast protein, death occurred from severe degeneration of the heart and acute oedema of the lungs before the liver changes had time to develop. Lesions caused by restriction to yeast protein could be prevented by cystine or methionine, while tocopherol prevented all the lesions mentioned. György and Rose found that the red blood corpuscles of rats kept on diets deficient in vitamin E, even for short periods, were rapidly haemolysed either on injecting the animals with alloxan or its reduction products or on treatment of the corpuscles *in vitro* with dialuric acid. While tocopherol prevented the tendency to haemolysis, it did not prevent the development of diabetes.

Farm Animals

Experiments on farm live stock have suggested that deficiency of vitamin E in the pregnant female does not cause resorption of the foetuses or abortion, although the vitamin is important in maintaining the health of both young and adult animals. In bovines kept on a deficient diet, consisting mainly of rice straw, Gullickson noticed no failure in spermatogenesis, nor in the size or vigour of calves which were carried to term. A high proportion of the heifers, however, died suddenly, usually during or shortly after pregnancy; one bull also succumbed. Electrocardiograms taken at frequent intervals suggested that the deaths were due to heart failure. Carpenter and Lundberg observed that the incidence of "baby pig disease," which is probably a virus disease of the influenza type, was significantly reduced by supplementing the sows' diet, which was of good quality, with additional allowances of tocopherol. Loosli found that the lambs of ewes kept on a diet of alfalfa hay and beans developed a muscular dystrophy which could be cured or prevented by tocopherol. Although the diet was not deficient in vitamin E, the levels of tocopherol in the blood plasma of untreated animals were abnormally low.

Loosli also confirmed the effect of tocopherol in improving the storage qualities of the body fat; in cows' milk the tendency to the development during storage of an objectionable flavour due to oxidative changes was checked. These observations may be correlated with the investigations of Dam, in which peroxidized fats have been detected in the adipose tissues of rats and chicks given diets deficient in vitamin E and containing large amounts of cod-liver oil.

Human Investigations

Quaife, Swanson, and Harris, in a study of the distribution of tocopherol in cases of accidental death, showed that most of the human body's stores of tocopherol, amounting to 3.5–8 g., were in the fat deposits. They estimate the daily intake of vitamin E in America at 10–25 mg., which is in substantial agreement with Engel's estimate of 15 mg. for the population of Holland. These data imply that vitamin E is quantitatively important as a constituent of the unsaponifiable fraction of human fat, approaching cholesterol in amount. Darby and his colleagues have found that the level of tocopherol in the blood plasma is influenced by disease, being lowered in conditions associated with an impaired absorption of fat and raised in metabolic disturbances characterized by hypercholesterolaemia. Normal values were found in women who had recently aborted, but Scrimshaw, Greer, and Goodland observed low levels in women who aborted between the seventeenth and twenty-fourth weeks of pregnancy as compared with those of pregnant women who did not abort during this period.

Claims that vitamin E is effective in the treatment of heart disease, of thrombophlebitis, arteriosclerosis and thromboangiitis obliterans, and of burns were put forward by E. V. and W. A. Shute. No controlled investigations were undertaken

by these workers, and critics suggested that the frequent occurrence of spontaneous remissions or cures could not be overlooked. The same criticism may perhaps be applied to several other investigations. Thus Ant and di Cyan formed the impression that in 100 cases of rheumatic diseases treatment with vitamin E mitigated pain, improved the mobility of the joints, and caused the regression of nodules and the reduction of swellings. Steinberg noticed improvement in 37 out of 40 cases of Dupuytren's contracture of the fingers after treatment with tocopherol, although he had no success in treating disseminated lupus erythematosus, diffuse sclerodermia, or dermatomyositis. Scott and Scardino found that about 40% of their cases of Peyronie's disease, with painful erections and abnormal curvature of the penis, were improved. Pennock thought that vitamin E was possibly of value in treating six cases of thromboangiitis obliterans. Scardino and Hudson considered that some benefit was obtained in about half the cases of urethral stricture which they treated with vitamin E. Stritzler reported improvement in 14 cases of stasis dermatitis and in 11 out of 13 cases of stasis ulceration. Investigations by Dowd deserve attention on account of his impressive claims and his caution in using a control group of patients. After treatment with vitamin E all members of a group of 18 children with chorea, aged 6–17 years, were cured of choreiform motions, and their sleep and appetite were improved; out of 17 untreated subjects only two showed similar improvement.

The claims that tocopherol is valuable in the treatment of heart disease were contested by Travers and her colleagues, who found no differences in the serial electrocardiograms, exercise tolerance tests, or blood-pressure readings in groups of patients with heart disease treated or not treated with tocopherol. Donegan, too, had equally negative results in the treatment of cardiovascular diseases. Baer, Heine, and Gelfond examined patients with angina pectoris, hypertensive heart disease, and cardiac failure by physical examination and by electrocardiograms and ortho-diagrams over periods of three to six months. Treatment with α-tocopherol was invariably ineffective in causing improvement in the electrocardiograms or in decreasing the size of the heart. In the few patients in whom angina pectoris appeared to be improved equally favourable results were later obtained by the administration of a placebo.

Vogelsang claimed that when adult diabetic patients were given vitamin E their insulin requirements were decreased, and that after treatment for a year insulin was often no longer necessary. In contrast to a claim by Butturini, tocopherol did not decrease the blood sugar in normal subjects. In juvenile diabetic patients Guest observed no improvement after treatment with tocopherol.

POSTGRADUATE MEDICAL EDUCATION

NEW JOINT BOARD

A Joint Board has been established by the Royal College of Physicians, the Royal College of Surgeons, the Royal College of Obstetricians and Gynaecologists, and the British Postgraduate Medical Federation. As announced briefly last week (p. 917), the Board, under the chairmanship of Sir John Anderson, has been set up in order to effect co-operation between the three Colleges and the Federation in providing postgraduate education in the medical and dental specialties. The Joint Board is to consider existing provisions for the postgraduate education and training of specialists, and to invite the attention of medical schools and institutes, hospital authorities, and other bodies providing postgraduate medical education to such modifications as may from time to time appear desirable.

Since its establishment the Joint Board has paid particular attention to the procedure for giving postgraduate students advice on suitable hospital appointments and programmes of study. For this purpose the services of the staff of the central office of the Federation are available, and each Royal College has arranged to provide expert advice and guidance for suitable candidates for its higher qualifications and for other graduates visiting this country for the purpose of further study. In addition a small central advisory committee has been formed to assist the central office of the Federation to deal with other postgraduate students and to consider problems of common interest. The Board is concerned especially to establish co-operation with medical schools, boards of governors of teaching hospitals, regional boards, and hospital management committees in order that potential specialists may obtain suitable hospital appointments. It is hoped that the new arrangements may prove of value not only to graduates of the United Kingdom but also to those from universities overseas.

LEPROSY IN THE BRITISH EMPIRE

LONDON EXHIBITION

The "Belra" (British Empire Leprosy Relief Association) Exhibition at the Academy Hall, Oxford Street, London, was opened by the Prime Minister on May 13. The exhibition, which is designed to bring home to the public the incidence of leprosy throughout the world, and especially in the British Empire, is far more than a collection of pictures. An African hut, made of real Nigerian mud, with palm-mat roofing, shows the type of home normally shared by a family of nine or ten people. The incidence of leprosy in different parts of the world is shown by relief maps. The history of the disease is also traced from the earliest records of its incidence in the Nile delta. A large-scale replica of the famous Itu colony, started by Dr. McDonald and his wife in Southern Nigeria twenty years ago, is another interesting exhibit; it shows a doctor, a nurse, and two assistants, who were responsible for treating over 5,000 in-patients. Stress is laid on the increasing number of cases of leprosy in Great Britain. The medical secretary of the association, Dr. Gordon Ryrie, stated at a press conference that he knew of over 50 detected cases, and that there are almost certainly as many more unknown to his association. This increase is due to the return of Servicemen and prisoners-of-war from abroad, to the arrival of both British and Eurasians from India and Pakistan, and to the presence in this country of a much larger number of foreigners than before the war. Dr. Ryrie pleaded for a section of a modern hospital in London where these patients could receive treatment under a whole-time leprosy expert. All the facilities of modern laboratories would then be available for the study of the newer drugs, and postgraduate courses could be arranged for doctors and nurses.

THE MEDICAL ART SOCIETY EXHIBITION

[FROM OUR ART CRITIC]

Judging from the Medical Art Society exhibition, which is on view at Walker's Galleries, 118, New Bond Street, London, W.1, until June 2, doctors are apt to pack their paint-boxes in their holiday suitcases and appear to find landscapes a pleasant retreat from surgeries full of their fellow creatures. Some are technically expert, some less so; but evidently they have all enjoyed themselves.

Perhaps the biggest difficulty for an amateur painter is to decide just what he really wants to make of a picture. Pictures, after all, can be so many things: a sketch to remind you of a pleasant holiday, an accurate representation carefully carried out, or something quite new and of its own, the result of looking at familiar objects as if for the first time. The majority of the doctors showing their work in this exhibition set out to record a scene, but a few here and there seem to have attempted the far more absorbing and fruitful task of seeing. Mr. Frank Forty, for instance, in his two canvases "Pont de la Concorde" (35) and "Sheephaven, Co. Donegal" (29) has created scenes consistent within themselves. His "Thames at Richmond" (21) was a more difficult subject, and here he has not been so successful in bringing the various parts into harmony. Dr. Edith R. Magill's "On the River Test near Houghton Village" (1) is an extremely sensitive picture which has caught the subtle play of tones between water, trees, and sky. Dr. L. Woodhouse Price's "A Surrey Barn" (13) has also a harmonious composition. Dr. Norman Patterson enjoys the texture of paint, and in "Pyrus Floribundus" (43) has used it to good effect. His "Glass Ball and Oranges" (67) is an interesting but rather less successful effort. Among the water colours, Dr. E. Goodwin Rawlinson's "Near Watford" (99) has an almost Chinese

restraint, and Dr. Henry Wilson's "Rainy Evening, Islington" (100) has exactly the glistening shimmer of a wet London night that can often make magic of the dreariest streets.

There are other exhibitors who have tried to create something but seem to have had difficulty in deciding just what was important in their compositions. For instance, Dr. Francis Roles has two paintings of the Thames (36, 55) which look restless because there are no predominating lines or colours. This fault may have come from too much preoccupation with technique, so that simplicity has been lost. Another artist who appears to have become too preoccupied with technique is Dr. Lorna King, whose exhibits last year were more spontaneous than her present Kentish landscapes (4, 9).

Among some traditional and extremely competent paintings are Mr. T. Holmes Sellors's "Winter, 1949" (75), Dr. R. Foster Moore's "Laksfors, Norway" (93), Dr. Reginald Morshead's "In Holmwood Park" (106), Dr. Hugh S. Stannus's "The Coast Path, Jersey" (109), Dr. C. Branwell's "Harvesting in Cornwall" (32), Dr. R. A. Beaver's "Porte de Halles, Brussels" (50). Sir Henry Bashford as usual has produced three very individual compositions which are not so intricate as at first sight they appear. His "Autumn Evening, Wiltshire" (122), for example, is almost as simple a composition as Dr. J. D. W. Pearce's delightfully naive "Early Morning in Tessin" (17).

On the whole the doctors seem to have cast their vote for Munnings against the moderns; the few who have not done so do little credit to modern art. Dr. W. J. Benzimra in "Still Nature" (53) has produced an attractive painting with colours derived from Gauguin, but those who show signs of being influenced by anyone of a later period than the impressionists seem to have reached the facile conclusion that anything dragged up from their subconscious minds is worthy to be put on record!

As the titles of the pictures show, landscapes predominate in this exhibition. It is remarkable that hardly anyone has thought of painting familiar objects in homes and surgeries. Dr. Cecil M. Ruben in "Daily Event" (16) has attempted a difficult domestic scene not unsuccessfully; but there must be many unexplored possibilities in medicine bottles, "old crocks" in waiting-rooms, laboratory benches, or—an obvious subject which has been almost entirely neglected—the human form.

ROYAL MEDICAL FOUNDATION OF EPSOM COLLEGE

PENSIONS, SCHOLARSHIPS, GRANTS

The Council of Epsom College invites applications for a "Hadlow" pension of £70 per annum for a medical practitioner or the widow of a medical man fully 60 years of age, and one or two St. Anne's Scholarships for girls attending Church of England schools. Candidates must be fully 9 years of age and the orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years. The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected.

There are also available: (*a*) pensions for necessitous medical men fully 55 years of age, provided they have been registered for five years, for the widows of medical practitioners fully 60 years of age, and for the spinster daughters of medical practitioners of 55 years and upwards. Awards are made as vacancies occur. (*b*) Scholarships and grants for children of either sex, not necessarily orphans. Candidates must be of public-school age and in need of such help. (*c*) Grants from the Eastes Trust for the relief of registered members of the profession of any age, their widows and orphans, and for the educational assistance of their daughters or sons.

Full information and forms of application are available, on request, from the secretary, Epsom College, Surrey.

The Ministry of Health has appealed to hospital boards and management committees to start National Savings groups and to increase the activities of those in existence. Information can be obtained from the local Assistant Commissioner for National Savings, whose district office address can be obtained from the telephone directory under "National Savings Movement."

Preparations and Appliances

"PERSPEX" OXYGEN TENTS

Dr. G. M. KOMROWER, visiting paediatrician, Royal Manchester Children's Hospital, writes: Considerable effort has been made in recent years to improve oxygen therapy, but not many efficient and cheap appliances that can be used for neonates and infants have been produced. With the assistance of Peak Plastics, of Manchester, I have evolved two types of perspex oxygen tents. The first (Fig. 1), which is a total cover,

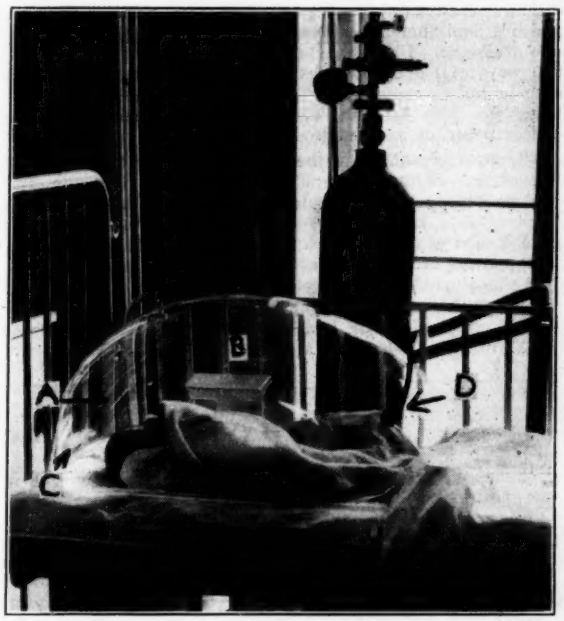

FIG. 1.—"Total cover" type of oxygen tent.

measures 26 by 14½ by 11½ in. (66 by 36.8 by 28.5 cm.) and has been found most useful for premature and newborn infants. The second type (Fig. 2) covers the head and shoulders and has a skirt attached around the opening (E) to minimize oxygen loss. This type is made in two sizes, the larger measuring

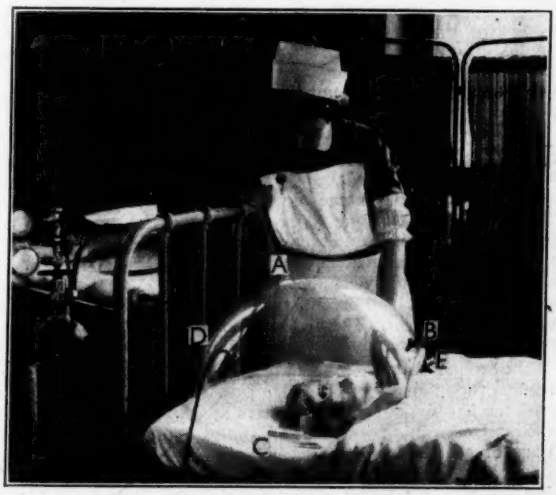

FIG. 2.—Bell-tent type.

24 in. (61 cm.) in diameter by 12½ in. (31.5 cm.) in height, and the smaller 18½ in. (47 cm.) in diameter by 11 in. (27.5 cm.) in height. The tents are blown; this eliminates any riveting, and consequently they are inexpensive, unbreakable, and easy to wash and keep clean.

We find that an oxygen concentration of 40% can be achieved by running at 4 litres a minute for 30 minutes and then reducing to 2 litres (oxygen inlet D).

As perspex is a poor conductor of heat, the cot should first be heated by an electric pad or hot bottles and the temperature then maintained by the latter if necessary. In this way it should be possible to avoid the simultaneous use of oxygen and an electrical appliance, and thus the danger of explosion should be averted. The oxygen can be used direct from a cylinder or passed through coils which are surrounded by ice, and if a high humidity is required it could be bubbled through a water-bottle. Excess humidity can be dealt with in one of two ways: (1) opening outlet A and blowing oxygen through quickly for 10 minutes, or (2) the use of soda lime in container B. This will deal also with any possible increase in concentration of carbon dioxide.

The great advantages of the tents are: (1) the excellent view one obtains of the infant; (2) they are easy to handle, and can be disinfected with "dettol" solution, weak potassium permanganate, or mercuric iodide solutions; (3) they are very durable and cannot be damaged easily; and (4) they are very light and can be removed without any effort by the handles (C). It is suggested that the "total cover" tents be mainly reserved for premature and neonate infants, the smaller bell-tent for infants up to 10 lb. (22 kg.), and the larger for infants up to 16–17 lb. (35–37 kg.).

Nova et Vetera

THE MEDICINE OF MACROBIUS

The number of authors who attain immortality at second hand because their names have been mentioned by better writers is large. One of these unread immortals is Ambrosius Theodosius Macrobius. It is certainly a good mouth-filling name, but that would not have saved him. Macrobius, *tout court*, is read every year by thousands because it occurs twice in Boswell's *Life of Johnson* (see Powell's revision of Hill's edition, Oxford, 1934, vol. 1, p. 59; vol. 3, p. 25). Johnson surprised his teachers when he came up to Oxford as a lad by quoting Macrobius, and Boswell many years later quoted Macrobius to the doctor. We are not told what passage Johnson quoted to the Oxford dons, but may be sure it was not the one Boswell quoted, which the chaste editors of Boswell left in the obscurity of a learned language. Macrobius was edited by a learned German in the middle of last century (*Macrobii Ambrosii Theodosii, Opera quae supersunt*, ed. Ludovicus Janus. 2 vols. Quedlingburg and Leipzig, 1852), and embedded in much dullness one finds something of medical or at least physiological interest.

Historians of literature have not much to say of Macrobius. He was apparently a contemporary of the great Augustine of Hippo, and he *may* have been a very important person—a man of the same imposing name certainly was—but the case is made doubtful by the fact that to be a high imperial officer at that time it would have been necessary to be a professing Christian, and nothing in Macrobius's writings suggests that he was a Christian. It is probable that Macrobius, like Augustine, was a North African, and certain that, unlike Augustine, he was a good Greek scholar. The first volume of von Jan's edition may be left to philologists.

The second volume, containing the *Saturnalia*, is much better reading for an amateur. The plan is that a party of friends shall pass the Saturnalian public holidays as what the British Broadcasting Corporation would call a Brains Trust, discussing questions of general interest. Since Plato's day it was a favourite scheme, and, although schoolmasters would not think much of Macrobius's latinity, he carries out the plan with a good deal more vivacity than Cicero showed. He gets on good terms with the reader quite early. When the friends are assembled a visitor is announced who is not pleased to find a party and says rather cattishly that he hopes he is not intruding on some secret meeting. Thereon one of the party remarks that certainly there are no secrets and, indeed, that he follows the rule *Sic loquendum est cum hominibus, tanquam dii audiant; sic loquendum cum diis, tanquam homines audiant.* This may be borrowed, but the learned editor does not say so; anyhow, it *is* a good phrase. The party then settles down to an account of the origin of the Saturnalia and other archaeological and philological matters, and next (after dinner, by the way) to the goodness or badness of jokes. Some of the jokes do not seem *very* funny, but the learned editor does now and then introduce a note of unconscious humour. One of the jokes is the story of Augustus, who, seeing a young man in Rome much like him, said: "Was your mother ever in Rome?" and received the reply, "No, Caesar, but my father often was." The editor has a footnote pointing out that this was an aspersion on the legitimacy of the emperor. Eventually the brains trust settles down to medical or physiological questions; it is this part—from chapter 4 of the seventh book to the end—which has medical interest. The radio doctor is Disarius, a Greek who is treated with that mixture of respect and faint mockery which is in the Roman tradition.

The first question proposed is whether a simple or a complex diet is the more hygienic. The doctor leads off with a plea for simplicity; he remarks that cattle fed on simple diet are much healthier than human beings, but those fattened on mash (*oflae compositae*) do suffer from diseases. Then no doctor would give a patient in a fever anything but a simple diet. Again, everybody knows that mixing drinks is unsound.

These are matters of observation, but scientific reasoning leads to the same conclusion. There are four stages of digestion (we should say assimilation)—the coction in the stomach, the change into blood by the liver, changes in and transport by the blood vessels to the tissues, and, finally, assimilation by the tissues. But if the stomach has to deal with a great variety of foodstuffs, some needing more, some less coction, there is likely to be more trouble than when the diet is simple: the wrong ingredients may reach the tissues and the result may be humoral changes which produce gout and rheumatism.

This exposition (of course it is much longer than this abstract) is well received, but another member of the brains trust, Eustathius, is urged to try his hand as a critic. He scores a bull's-eye with his first shot by reminding Disarius that the so-hygienic sheep and cattle live shorter lives than men, and that according to Homer some pestilences which destroyed men began in cattle. (The authority of Homer or Virgil was as formidable a weapon in such debates as a quotation from Marx or Lenin in modern communist circles.) Also, *is* the diet of herbivora so very simple? Are not the pastures of different fields very different?

Warming to his work, Eustathius points out that man is a highly complex animal and surely needs a complex diet, that eating the food one enjoys favours coction. Gluttony is always wrong, but a glutton can stuff himself with olives alone or cabbage alone. If variety is bad, what about medical prescriptions? Eustathius evidently has the majority with him, and Disarius tactfully congratulates him on his knowledge of medical dialectic and adds: "Whoever wishes to choose the right path let him learn from practice; what will be good for health, experience will decide (*Qui volet eligere sequenda usum consulat, et quid sit utilius sanitati experientia docebit*)."

The brains trust dealt with many dietetic problems, some of which are mysterious. Thus Disarius is invited to explain why minced meat is difficult to digest. He does not dispute the fact, but attributes it to the propensity of finely divided food to pass into the semi-fluid contents of the stomach and so to escape contact with the wall of the stomach, the heat of which promotes digestion. The explanation is not satisfying, but one who remembers minced chicken as a diet for invalids might dispute the fact the doctor attempted to explain. However, Disarius may have been right; in these days of austerity in England many meat dishes with pleasant names are—mince. But the meat run through the mincing machine is hardly of the quality of the meat minced for invalids in nursing-homes of long ago.

MAJOR GREENWOOD.

Correspondence

Treatment of Basal-cell Carcinoma

SIR,—I must quarrel with Sir Cecil Wakeley and Mr. Peter Childs's treatment (April 30, p. 737) of basal-cell carcinoma. Their assertion that "there should be no recurrence with adequate surgical excision" is fair enough, and, indeed, providing sufficient emphasis is made on the word adequate, it is true in the case of malignant disease anywhere, no matter how advanced. Having gone so far, I am surprised they go on to say, "In almost all cases rodent ulcers may be treated in the out-patient department under local analgesia." This, of course, is not adequate treatment of a basal-cell lesion, and if this advice were faithfully followed the recurrence rate would shoot up from 5% (following radiotherapy) to something well over 50%.

The majority of rodent ulcers occur on the skin of the face—the inner canthus, eyelids, ear, and nose being particularly common sites. The "adequate" surgical excision of such lesions is very often mutilating, and most surgeons, quite naturally, tend to preserve as much normal tissue as possible for cosmetic reasons. Inevitably a few cells will be left behind in quite a fair percentage of cases, and the lesion recurs or, more accurately, residual cells continue to grow and divide.

Sir Cecil Wakeley and Mr. Childs state, "Only rarely need a patient be condemned to irradiation on account of poor health." In actual fact radiotherapy is a first-class treatment for practically all basal-cell carcinomata, and the only exceptions are those lesions which occur in sites which are particularly sensitive to irradiation, such as the foot, and also those lesions which recur after irradiation. The great majority of the lesions can be treated by a simple, single 15-minute exposure of *x*-irradiation. Seldom does depth of penetration of the lesion interfere with effective radiotherapy, and cure is not uncommon even in those quite inoperable lesions, now happily rare, of very many years' duration which have extensively destroyed normal tissues. The cosmetic results following radiotherapy are excellent on the whole, and in many cases it is not easy to detect the treated skin. Gross skin damage due to irradiation is uncommon except in the case of those extensive recurrences, previously irradiated and beyond surgery, which inevitably have to be re-irradiated.

Finally, I think it is true to say that from the treatment point of view there has in the past twenty years been a steady and impressive improvement in the malignant situation in several sites, and I think this is more due to improvements in radiotherapy techniques than anything else. It is a fact that only 5% of basal-cell carcinomata recur following good radiotherapy, and I maintain that this is a real achievement. To return to the days of excision under local analgesia in out-patient departments would be a step backwards.—I am, etc.,

Hull. KENNETH W. BEETHAM.

Cow's Milk and Tuberculosis

SIR,—*Agriculture*, the journal of the Ministry of Agriculture, in its number for May, 1949, gives the following corroborative evidence of the danger of infection from cow's milk. Under the heading, "Farming Affairs—Whey-fed Pigs," it says:

"The incidence of tuberculosis in pigs fed on whey is high, and in such pigs the disease is often acute. Consequently, the carcases of pigs fed on whey are more frequently condemned on account of tuberculous infection than those of other pigs. To guard against this danger, all whey should be boiled before it is fed to pigs."

—I am, etc.,

Winchester. W. E. C. LUNN-ROCKCLIFFE.

An Unfortunate Precedent

SIR,—The profession, for good or for ill, has chosen the path of socialization and planning. Instead of a natural spontaneous growth, with extension here or recession there in conformity with the strains and stresses of supply and demand—cause and effect—there has been substituted a central control to take over these functions. This central control has to try to foresee and to provide for every professional activity and contingency, small and large, imminent or remote.

Previously a professional man's reputation depended upon ability, industry, personality, opportunity, and luck. Now it will depend not inconsiderably upon the organized plans and dictates of authority. However omniscient, omnipotent, and benevolent the central authority may be, it remains the central authority; and so long as its decisions and opinions rule and organize medicine the profession will have lost its freedom.

These are the reasons basically for the present variously expressed reactions against the Committee for Distinction Awards. But the profession has, by and large, voted for this regime or regimen, and it must swallow the dose and like it. It has substituted political expediency for scientific principles, and will learn only by long and bitter experience that the change is scientifically and professionally for the worse.—I am, etc.,

London, W.1. GEOFFREY BOURNE.

SIR,—The letter from the eight distinguished physicians who are Censors or other officials of the Royal College of Physicians would not deceive a politically immature rabbit, and should not bamboozle a single licentiate of the College. It is really a defence of presidential infallibility. Lord Moran's personal integrity has not been attacked, but the idea of the Awards Committee as such, and of his chairmanship, is open to examination in the light of history and of common sense. I will certainly defend the President's personal integrity, industry, or administrative ability, but I will not defend his views on the Health Service, his relation to the Government, or the relation of the College to the Government.

The centralized grading of the medical profession is nonsense. The language and methods of the cattle market or of Cruft's have no place in a liberal profession, whatever the integrity, intelligence, or ability of the graders, or their capacity to weigh evidence. How is it possible to equate the claims of the teacher, the research worker, the writer, the originator, the thinker, the administrator, the clinician, and the artist? Are we to breed for beef or for brain, for quietness in harness or for originality? It would take the wisdom of Solomon to arrive at anything more than the roughest and readiest of answers. The Censors' comment on this grading is that it is a "novel idea," though the phraseology suggests the lucky dip or the Christmas cracker. But at least the "novel idea" was sponsored by Lord Moran, and Lord Moran becomes the first chairman of the Awards Committee at a salary of three thousand guineas for the first year.

The history of the Royal College of Physicians is largely a history of medical monopoly and patronage. As long as these things are safe, the rest can go hang. Under the Health Act the monopoly instinct of the College is fused with the monopoly-loving instinct of a political philosophy. The infallibility of the President is, however, now subject to the still greater infallibility of the Minister. The College has proved a great convenience to the nationalizers of medicine, but it has taken good care to establish control over consultants through the State monopoly of the hospitals. Sir Henry Halford was, as you point out, the longest in office as President, with 25 years to his credit. George IV was certainly a man who knew his way about town, and this is how he wrote to Sir Henry:

"The King sends his kind regards to Sir Henry Halford and acquaints him that it is the King's intention to take an opportunity of appointing Dr. Southey, one of his physicians-in-ordinary, in the room of Sir William Knighton, who has desired, from the heavy pressure of his other situation, to retire from the responsibility of this.

"The King would have been glad if Dr. Southey had been a graduate of either of the English universities, and the King wishes that Sir Henry would supply this deficiency by making him a fellow of the College. The King mentions this as a continuation of the same feeling, which induced him on a former occasion to state to Sir Henry that the President of the College of Physicians should in future, for the time being, always be a physician-in-ordinary to the King.

"The King desires to express how sensibly he feels Sir Henry's constant attention, and the benefit which the King at all time derives from his great judgment and skill in his profession."

Dr. Southey received a Fellowship a few weeks later and shortly afterwards became physician-in-ordinary to George IV. The Royal Family soon got tired of having Presidents as hereditary physicians-in-ordinary, and the arrangement was cancelled.

The clue to the Censors' letter is contained in the statement that Lord Moran would be the first to admit how much he owed "to the sympathetic attitude of the Minister of Health." This statement suggests that the Minister is already a likely candidate for canonization by the College. Supposing the College had been asked to work out a design for patronage under the Health Act, how better could it have achieved this than by making the President the chairman of a Distinction Awards Committee? It is ridiculous to expect that the College will suddenly abandon its pretension to medical monopoly or to the exercise of its patronage. It is ridiculous to expect that Presidents will not be biased in favour of their own Fellows. It is ridiculous to expect that candidates for honours will not refrain from criticism of Presidents if it is likely to diminish their chances.

These criticisms are criticisms of the whole conception of the Awards Committee and the relations that now exist between the profession, the College, and the State. But they are not criticisms of Lord Moran's personal integrity. The College is now an organ of Government, and its proper place is inside the Ministry of Health, which is already the home of the Awards Committee. The College has abandoned all pretence of moral leadership, and again, behind the plea of unity, it asks for support for the Awards Committee in exchange for College support in getting more favourable terms for general practitioners. Perhaps we are not as green as the Censors think. At any moment I expect to get Captain Nye's "noon wire" recommending Plastic Lad, Sycophant, and College Boy for the Summer Meeting, with Sheer Merit as an outsider. But I shall keep my money till times are better.—I am, etc.,

London, W.1. REGINALD T. PAYNE.

Statistics and Health Education

SIR,—I must have expressed myself very badly, for Dr. W. Hartston (May 14, p. 866) has completely missed the point of my letter (April 16, p. 680). Of course all our schemes must be based on a knowledge of the facts—the wider the better—but what I am concerned with is the *usefulness* of the facts. Small boys collect numbers—of motor-cars or railway engines—and Government departments collect numbers—of everything they can think of. (In fairness to small boys it should be added that they only waste their own time and do not pretend that the results are of national importance.) The real question is, Are the most useful facts being collected?

Suppose the Ministry of National Insurance were concerned with the prevention of road accidents. According to their present method they would begin by collecting statistics as to the causes of death—fractured skull, crushed thorax, shock, etc.—and then proceed to devise means of preventing each individual injury. We might then see each bus passenger compelled to don a crash helmet and, indeed, a complete suit of armour when the steel situation permitted. Meanwhile there would have been no traffic lights; no warning signs, no cambered roads, and no attention to brakes. Fortunately, Sir, the prevention of road accidents has been tackled by intelligent, if somewhat ineffective, lay people, or the position would be much worse than it is.

Now, Sir, why should not the same method that is used to prevent road accidents be applied, but with much more vigour, to prevent illness? I am far from belittling the results which preventive medicine has achieved, though I do sometimes regret the complacency with which they are put forward. How much better off are we if people get influenza instead of malaria? Or if there is a marked decrease in scurvy and a marked increase in cancer of the lung? We aim at keeping people free from road accidents, whatever the pathological condition produced. Why not aim at keeping them free from disease, whatever form it takes?

Now this involves a knowledge of why people get ill at all, as opposed to what particular illness they get. Have we that knowledge at present? Every general practitioner could tell Dr. Hartston of cases where the strains and stresses which a patient has endured before he became ill have been a major factor in producing that illness, but, as I said before, general practitioners are not given enough time to think. If a few of them were given time for research they could produce enough evidence to revolutionize our approach to preventive medicine. But would it? Dr. Hartston suggests that it would "get us no further than to convert this *crème de la crème* of G.P.s into clinical specialists or social statisticians"—in other words that whatever evidence they produced nobody would take any notice of it. Critical as I sometimes am of my colleagues in the public health field, I cannot but believe that on this occasion Dr. Hartston is doing them an injustice.

On another aspect of health education Dr. Hartston has completely—and perhaps wisely—evaded my question about the "lumbagos," but in his original suggestion he has raised an issue which cannot be evaded. If he starts "calling all lumbagos" from Luxembourg—or any similar propaganda to the sick—what about the G.M.C.? Now that body, which exists for the protection of the public, is displaying horse sense when it objects to treatment *in absentia*, for every patient is different from every other, and the doctor who has not seen the patient cannot treat him properly. Many of us must have wondered how some of our public health confrères have got away with it so far. One can only assume that the G.M.C. has hitherto regarded them as well meaning and relatively harmless people, but if they are to start radio propaganda in this way, can the blind eye be turned on them much longer?—I am, etc.,

East Hoathly, Sussex. F. GRAY.

Malaria Prophylaxis with Proguanil

SIR,—The recent correspondence in the *Journal* regarding the occurrence of malaria in persons on prophylactic proguanil makes the case reported here one of some interest.

Both Dr. E. S. Walls (July 24, 1948, p. 225) and Dr. A. M. Best (Feb. 19, p. 324) report attacks of falciparum malaria in persons taking more than 0.1 g. of proguanil every other day, and both advise 0.1 g. daily as a prophylactic. The Colonial Medical Research Committee implements this advice in their recommendations (*Journal*, April 2, p. 585). The following case records a break-through of falciparum malaria in an expatriate taking 0.1 g. daily of proguanil as a prophylactic in an area in which falciparum malaria is endemic.

A European nursing sister had had several mild attacks of a fever of short duration. The fever was accompanied by headache, backache, and nausea, and characterized by a leucopenia, urobilinogenuria, and the presence of Türk cells in the thin films. No malaria parasites were found in thick blood films taken during the attacks, and in the absence of a definite parasitaemia the dengue group of fevers was considered as a probable cause of the pyrexia. Subsequent to the last pyrexial attack she had increased her dose of proguanil to 0.2 g. daily and had continued this for eight days, reverting to 0.1 g. daily thereafter. Thirty days after this attack she had an evening temperature of 101° F. (38.3° C.), and a thick blood film taken at this stage showed from 2-20 parasites in every microscopical field. All the parasites were young ring forms (trophozoites). The thin film showed some red cells containing two and three parasites per cell, parasites with double chromatin dots, and accolé forms. The film was typical of an acute falciparum infection commonly seen in children in this area. The white blood count was 3,800 per c.mm., and the urine gave a strongly positive test for urobilinogen. Treatment with increased proguanil and mepacrine aborted the attack, and the temperature became normal the following day, and has remained normal up to the time of writing. Gametocytes appeared in the blood on the fourteenth day after the commencement of the attack.

Since her arrival in the country nine months ago the sister had been taking 0.1 g. of proguanil regularly daily. She admits to having missed an occasional tablet, but states that at the maximum this did not amount to more than one a week, and usually was much less than this. It would appear in this case that a daily dose of 0.1 g. of proguanil was not sufficient to prevent the break-through of falciparum malaria.

We are indebted to the D.M.S., Nigeria, for permission to publish this account.

—We are, etc.,

FRANK DAVEY.
MICHAEL SMITH.

Uzuakoli, S.E. Nigeria.

Princess Tsahai Memorial Hospital

SIR,—May I beg the hospitality of your valuable columns to announce a reception at the Cora Hotel, Upper Woburn Place, W.C.1, on June 16, from 3 to 5 p.m., to welcome Lord Winster, the chairman of the Memorial Hospital council, on his return from Cyprus, and General Cottam, who has just concluded seven years' magnificent service as head of the British military mission to Ethiopia? His Excellency, Ato Abeba Retta, the Ethiopian Minister in London, has kindly consented to be present. Brigadier G. S. Parkinson will preside, and Dame Irene Vanbrugh, Lord Amulree, and Mr. Hermon Ould will speak.

I should be pleased to send invitations to the reception on application by your readers, so far as accommodation permits. More than half the equipment for the Memorial Hospital (built in Addis Ababa by British subscriptions as a tribute of friendship to a gallant ally) has now been shipped from this country, and other goods will shortly sail. But the full target has not yet been reached; further purchases to make possible the opening of the hospital must still be made. Donations should be drawn in favour of the Princess Tsahai Memorial Hospital Fund and addressed to the honorary treasurers, Lord Horder and Lord Amulree, c/o Messrs. Gould & Prideaux, 88, Bishopsgate, London, E.C.2.—I am, etc.,

E. SYLVIA PANKHURST,
Honorary Secretary,
Princess Tsahai Memorial Hospital.

3, Charteris Road,
Woodford, Essex.

Curare-modified E.C.T.

SIR,—Drs. P. D. W. Shepherd and D. C. Watt (April 30, p. 752) give an excellent account of their technique for curare-modified E.C.T. I have had very little experience of E.C.T. in any form, but as an anaesthetist I feel that some comment is required on their method of induction and recovery.

The rapid intravenous injection, all in one syringe, of atropine, curare, and thiopentone is not to be recommended and sooner or later will lead to complications. They should be given in separate syringes: this gives a little more time for the atropine to develop its maximum effect (drying of secretions, etc.), and also enables a small test dose of curare (3–5 mg.) to be given without its effect, if any, being blurred by the accompanying thiopentone. After a pause of 1–2 minutes the remainder of the curare is given and immediately followed by the thiopentone—as recommended by Gray (*Ann. roy. Coll. Surg. Engl.*, 1947, **1**, 191).

The use of an artificial airway should rarely be necessary. In most cases, and with a little practice, the airway of a curarized patient can be adequately maintained by holding the jaw forward, combined with gentle insufflation of oxygen: the slightly increased pressure of oxygen does, of itself, tend to push past a drooping tongue. The insertion of an artificial airway into a curarized patient who has had *very little* anaesthetic drug (e.g., 0.2 g. of thiopentone) can lead to regurgitation of stomach contents, or partial laryngeal spasm—rare occurrences, but not to be forgotten.

Finally, I should like to suggest more frequent resort to neostigmine: 2.5 mg. and 1/100 gr. (0.65 mg.) of atropine given as soon as the fit is completed neutralize the major portion of the curare in two minutes. To the best of our knowledge neostigmine has no toxic effects given in this way, and the early restoration of the patient's reflexes reduces the amount of supervision required per patient.—I am, etc.,

E. H. WINTERBOTTOM.

Liverpool.

SIR,—We have read with great interest the article on curare-modified electric convulsion therapy by Drs. Peter D. W. Shepherd and David C. Watt (April 30, p. 752). After considerable experience of the method we are convinced of its value, but would like to join issue with Drs. Shepherd and Watt on several points in their article.

Like them, we originally based our technique on that described by Hobson and Prescott, but, unlike them, we have found it advantageous to use doses of curare somewhat smaller rather than larger than those advocated by them. The object of the curare is to soften rather than to abolish the convulsion, and only in very rare cases is any advantage gained by the complete abolition of muscular activity. It seems to us that the larger dosage renders the treatment unnecessarily time-consuming and hazardous, and in unskilled hands may bring a valuable method into disrepute.

We have found the majority of cases could be adequately controlled by doses of 12 to 20 mg. of *d*-tubocurarine, and only in the case of very muscular individuals, active tuberculosis, or recent fracture did we consider it necessary to use larger doses. It has not been our experience that patients treated with these small doses are prone to develop troublesome laryngeal spasm.

With such doses of curare spontaneous respiration returns rapidly, and the patients can be left in charge of a trained nurse after a very short period of time. In this connexion we would also suggest that neostigmine or some similar preparation should be administered if there is any delay in the return of spontaneous respiration. The authors appear to have had it available but not to have used it.

It has been our practice to give doses of atropine intramuscularly from three-quarters to one hour before treatment is given. We have formed the opinion that the drying effect of the atropine is much more pronounced if it is given in this way than when combined with the curare and thiopentone injections.

In conclusion we should like to join with Drs. Shepherd and Watt in emphasizing the absolute necessity of having some suitable oxygen resuscitation apparatus available before the treatment is undertaken. This apparatus may be of the very simplest type, consisting of a face-piece and reservoir bag connected to the oxygen cylinder by a simple length of pressure tubing.—We are, etc.,

V. O. MCCORMICK.
J. N. P. MOORE.

Dublin.

Living Anatomy

SIR,—I apologize to my professorial colleague at Aberdeen for my temporary amaurosis (*v.* letter in the *Journal* of April 30, p. 778). I can only plead the recent acquirement of my first pair of bifocal spectacles—which I paid for. Would that I had waited six months for the free N.H.S. pair. *Mea culpa.*—I am, etc.,

H. A. HARRIS.

Cambridge.

Spermatolysis

SIR,—The article by Dr. Cafer Yildiran on spermatolysis (April 2, p. 575) raises several questions before one can accept the author's statement that this phenomenon alone was the cause of the sterility. There is no indication in the article that the wife was investigated, or that a Sim's post-coital test had been undertaken.

If his theory is correct, then lysis should take place in the vagina. Has this been investigated? Otherwise (since in the clinical notes the semen is reported as normal at the beginning of the investigation) clearly there is a possibility that such normal spermatozoa can escape into the uterus away from the lysin and so escape disintegration.

It would be interesting to know what the invasion qualities of such sperm were when tested by the Harvey method against known normal cervical mucus. It is rather dangerous to suggest that this factor (admittedly a new and interesting factor) may be the cause of sterility in the absence of any evidence that the wife was at fault. In any case, even on the evidence presented, it seems difficult to accept this theory altogether, since, after all, it is the spermatozoa and not the surrounding seminal fluid which enters the uterus, and there is no evidence to suggest that the sperm could not do this immediately after being passed. Much more evidence would be required before spermatolysis could be accepted as the sole cause of sterility in these cases.—I am, etc.,

BERNARD SANDLER.

Manchester.

Idiosyncrasy to Amethocaine Hydrochloride

SIR,—The recent correspondence on anaesthesia for bronchoscopy left the impression that there was little danger from amethocaine hydrochloride, provided the dosage was reasonable. This was not in agreement with my experience in four cases showing toxic signs, as the dosage in these cases had been normal. And this week it was driven home to me forcibly that idiosyncrasy, not overdosage, is the danger.

A young woman sucked a 1-mg. "nupercaine" lozenge before laryngeal examination. As she was uncooperative, this

was supplemented by two puffs from a fine de Velbis spray containing 2% amethocaine hydrochloride. Five minutes later she had a convulsion, and two minutes later a further convulsion was checked by intravenous thiopentone. Her condition remained alarming for a further 20 minutes.

The total dosage of amethocaine or its equivalent in this case was less than 10 mg.—i.e., less than 0.5 ml. of a 2% solution. The standard "decicain" lozenge contains 70 mg. of amethocaine hydrochloride, the equivalent of 3.5 ml. of 2% solution.

I think it is worth reiterating that any time amethocaine is used, whatever the dosage, a syringe and thiopentone should be ready for immediate use.—I am, etc.,

Market Drayton, Salop. A. CLARK PENMAN.

Pressure Cooking

SIR,—In reading Dr. A. Orley's letter (May 7, p. 822) on the subject of pressure cooking, there appears to be an error of judgment. The supposed evils (post-prandial leucocytosis) of pressure cooking are surely applicable to all cooking. Dr. Orley states that "food has to be heated above 83°-87° C., according to the kind of food." These temperatures are approximately those of simmering in normal cooking. The boiling and baking of foods, for which much higher temperatures (up to 260° C.) are used, must on his reasoning result in a perpetual state of post-prandial leucocytosis for the majority of the population. Few people consume raw food with *all* their meals.—I am, etc.,

G. H. DONALD.

H 11 in Malignant Disease

SIR,—The appearance in the *Intelligence Digest* of April 1 of an account of the H 11 treatment of cancer has brought to a head a doubt that has been chronically festering in my mind since the publication (*Journal*, Oct. 16, 1948, p. 701) of the report on this subject by the Medical Research Council—shortly followed by further data from the Hosa Laboratories which could not be answered on the basis of the Medical Research Council's conclusions.

What angers me is not any conflict between the views of the M.R.C. and any personal views of myself, for I have none; it is that the Council, in what should have been one of the most important investigations it has undertaken, should so signally have failed to perform that one function which is the *sine qua non* of such a report—namely, the resolution of doubt. It is both ludicrous and outrageous that a body, performing only the function for which it was created, should be guilty of such a defection that neither the inquiring practitioner nor the fervently hopeful relative can feel that his mind has been put at ease by a final and lasting opinion.

It requires but one proved cure of a proved case of cancer by H 11 to necessitate an exhaustive clinical and biochemical investigation of its properties, and I have met no one who shares with the investigator appointed by the M.R.C. her confidence in the felicity of conclusions drawn from a superficial examination of a small and random selection of cases.

The decision must be made one way or the other: it must be shown beyond further question which of the parties is right. The present situation is intolerable.—I am, etc.,

THOMAS BARRIE,
Capt., R.A.M.C.
B.A.O.R.

Pain in Childbirth

SIR,—I have been very interested in the numerous letters published in recent weeks about analgesia in labour. Like Dr. Mary Herford (April 9, p. 634), I am a woman doctor with two small children, and I too gave much thought to muscle control and relaxation during the process of labour.

My first confinement proved very painful after the first few hours, because there was scarcely any pause between painful contractions. I was more than grateful for the application of the Young-Simpson inhaler, which gave me complete relief. I was able to continue for a further five hours with no operative assistance other than double episiotomy, in spite of the fact that the baby weighed 9½ lb. (4.3 kg.) and was persistent occipito-posterior.

The second confinement was naturally much more easy. I was able to relax during the contractions up to a point, but again found I needed some relief. Crushing chloroform capsules gave some relief, but usually too late—their full effect coming on after the contraction had ceased. The Young-Simpson inhaler then proved perfect. The minute the pain becomes severe enough to cause deep breathing, the anaesthetic of choice (chloroform in my case) comes over, but as breathing becomes normal the inhalation of anaesthetic ceases and pure air is drawn in. The degree of pain controls the amount of anaesthetic. The result is perfect analgesia with rapid return to normality afterwards. If for any reason anaesthesia is required, all that is needed is adjustment of the valve by the professional attendant. On both occasions the Young-Simpson inhaler afforded me complete relief with no subsequent ill effects on myself or the infant.

From observation of patients in the labour ward and from my own experience and that of my friends I believe labour can be very painful in a great proportion of women. Understanding of the mechanism of labour, muscle control, and relaxation reduce the pain considerably, but when analgesia is desired, as is so often the case, I can think of nothing more simple for the attendant and more effective for the mother than this inhaler. Like Dr. Caiger Smith (April 9, p. 637), I cannot think why it is not in more general use. I am sure every mother who has used it would agree with me.—I am, etc.,

Cardiff. DOREEN H. ANNEAR.

Continuous Irrigation in Prostatectomy

SIR,—The account by Mr. A. Wilfrid Adams of "a third ureter" in prostatectomy (May 7, p. 809) leads me to describe the use of a double catheter for continuous bladder irrigation following any method of "closed prostatectomy." The reasons which led to the use of this method are those described by Mr. Adams; and, as a registrar, these post-operative troubles of bleeding and catheter blockage have concerned me rather closely. I am aware that the method is not a new one.

It consists of using a Foley catheter (for want of any other two-way drain), which is passed through the penis and then has the bag cut so that fluid can pass through the smaller tube into the bladder and out via the large passage. The end of the catheter is cut off obliquely towards the two small holes, and two lateral holes are also cut toward the end, so that one or other will not be blocked by lying on mucosa. The catheter can be re-used by "railroading" it through the penis attached to an ordinary catheter.

At the end of the operation the usual precautions are taken to see that the tube is draining well, citrate is left in the bladder, and as soon as the patient is returned to the ward the small tube is connected to an ordinary transfusion set, using sodium citrate, and a continuous drip begun. The outlet tube is connected to a bedside bottle with a "dripper" attached, so that the nurses can see at a glance that all is well.

The advantages of this method are that clotting does not take place in the bladder and there is no longer the ever-present anxiety of a blocked catheter; the bladder is closed; and the irrigation is really sterile—being a closed system requiring only the changing of the citrate bottle, as in any intravenous therapy. The nursing staff, too, appreciate the saving of work and worry.

There has been no difficulty in estimating the urinary output. Although the lumen of the large section of the Foley catheter is smaller than that of a similar single-bore catheter of equal outside diameter, it is more than compensated for by the fact that any blood present is kept liquid and is diluted by citrate and urine. The results have been, so far, most satisfactory.

I would like to thank Mr. D. A. Abernethy for his permission to use this method and write this letter.

—I am, etc.,

Oxford. H. D. MOORE.

Natural Childbirth and Sympatheticotonia

SIR,—In the leading article entitled "Natural Childbirth" (April 16, p. 669) you refer to the contention made by Dr. Grantly Dick Read (p. 651 of the same issue) that rigidity of the cervix is a consequence of sympatheticotonia, and you point out that "not everyone will agree that this argument is correct on anatomical and physiological grounds."

In this connexion the experiments reported last year by the Swiss obstetrician Sauter[1] are of considerable interest. He found that atropine administered to women in labour never

produced a relaxation of the cervix, but in 14 out of 16 cases increased the rigidity. Conversely, "prostigmin" caused relaxation in 12 out of 14 cases and no effect in the other two. Yohimbine likewise effected a relaxation. These findings undoubtedly strengthen Dr. Read's argument.

Sauter found, however, that atropine simultaneously raised the tone of the corpus uteri, while prostigmin and yohimbine lowered it, and he concludes that the entire uterus is innervated both by sympathetic and by parasympathetic fibres and that both segments respond similarly to changes in vegetative tone. He also objects, on anatomical and physiological grounds, to the comparison between the cervix of the uterus and the sphincters of the bladder and rectum.

In another paper[2] Sauter reports the effect of dihydroergotamine (a sympathicolytic agent devoid of the uterotonic action of ergotamine) in 43 cases of cervical spasm. Relaxation of the cervix occurred in all cases, and the basal tone of the uterus was generally lowered, with a corresponding increase in amplitude. The response to oxytocic preparations remained unimpaired.

There thus seem to be good experimental grounds for Dr. Read's contention that cervical rigidity, and hence much of the pain of childbirth, are the result of high sympathetic tone. Perhaps the sympathicolytic drugs will turn out to be valuable not only for relieving true cervical spasm but also, in selected cases, for promoting "natural childbirth."—I am, etc.,

Basle, Switzerland. A. M. WOOLMAN.

REFERENCES

1 *Schweiz. med. Wschr.*, 1948, **78**, 512.
2 Ibid., 1948, **78**, 475.

Medical Journals for German Doctors

SIR,—Grateful acknowledgment is made to those doctors whose names I have not had, but from whom journals, like sands of Pactolus, have descended on me.

Letters and other parcels are being individually acknowledged. All parcels leave this month of May for medical schools of Germany and Austria, in the libraries of which they will be generally available. But all the schools—Freiburg, Göttingen, Berlin, Leipzig, etc.—are in need. The vacuum, in fact, is such that, should any doctor be in doubt as to where he may direct his aid, he may rest assured that, addressed to any of these university schools, journals would have much ado to stray.

If, in sending gifts to Germany, doctors here will provide a clue to the donor they will confer upon brethren across the Rhine an added grace in enabling them to express their thanks.—I am, etc.,

London, S.W.1. J. P. S. DUNN.

POINTS FROM LETTERS

Vertigo and Influenza

Dr. H. S. GASKELL (Stowmarket, Suffolk) writes: I am surprised that Dr. Peter A. Walford (May 7, p. 821) should find anything unusual in vertigo as a symptom of influenza. Although I find it mentioned in few, if any, books, influenza is by far the most common cause of giddiness. In a paper published in 1935 (*Practitioner*, **134**, 646) I mentioned that it was not recognizable in 1932–3 but was "a constant feature" in 1934–5. It has been a constant feature ever since. If a patient walks into the consulting-room holding on to the furniture and complaining of a pain in the back of his neck there is no need for the G.P. to spend much time on the diagnosis. A few years ago, when I had a mild attack, I was afraid that I should be had up by the police, as I could not walk straight from the patients' houses to my car.

Vaccine Lymph

Mr. JOHN C. BRAYBROOK-NORMAN writes from the Pioneer Health Centre, Peckham: We have overcome the difficulty of expelling lymph from capillary tubes with an apparatus consisting of a small rubber bung the larger diameter of which is about ¼ in. (1.25 cm.). Starting at the wider end, a hole is burned for three-quarters of the length of the bung. Having chosen a piece of glass tubing to fit an available teat, one end is reduced to fit this hole. The glass tubing is cut off sufficiently long to allow for the teat to be affixed (total length about 1 in.). A slit is pierced with a Hagedorn needle through the remaining solid end of the bung to meet the larger hole. In use, one end is snapped off the lymph capillary tube and the open end is pushed through the slit to meet the larger-bore hole. The slightest pressure on the teat is sufficient to expel the lymph, which is under control for the whole while. The adaptor may be sterilized complete or the parts treated separately.

Obituary

D. LLEWELYN WILLIAMS, C.B.E., *M.C.*, LL.D., F.R.C.S.Ed., D.P.H.

Dr. Llewelyn Williams died at Liverpool on May 12 in his eightieth year. From 1920 until his retirement in 1935 he was a member of the Welsh Board of Health and the senior medical officer of the Ministry of Health in Wales. He will be remembered as an administrator. The smooth running of the old National Health Insurance scheme in Wales was due in no small measure to his administrative skill, his tactful diplomacy, and his unfailing good humour. He knew nearly every general practitioner in Wales, and he travelled the length and breadth of the country, especially in the early years, and did much to smooth out the difficulties of the hard-pressed practitioner confronted with a mass of new regulations.

David Llewelyn Williams was born in 1870, the youngest son of a Welsh Presbyterian minister. He was at school at Llandudno, and after some years as a pharmacist he entered Surgeons' Hall, Edinburgh, in 1895. A brilliant student, he took every medal and prize in each class he attended, and qualified in 1900. He was a house-physician at the Edinburgh Royal Infirmary, and he took the F.R.C.S.Ed. in 1904 and the D.P.H. in 1905. After a period at Leith General and Fever Hospitals he was appointed medical officer of health for the borough of Wrexham in 1905, and in the following year married Miss M. Price, of Rhyl. It was a happy marriage, and over forty years of comradeship ended only last year, when Mrs. Williams died. In 1907 Llewelyn Williams was appointed medical officer of health for the County of Denbigh, and was thus the first county medical officer in Wales. He did a great deal of pioneer public-health work in Denbighshire, and when the National Insurance Commission for Wales was formed in 1912 he was invited to join it as deputy medical officer. In August, 1914, he raised the Hygiene Section of the 38th (Welsh) Division, serving in the R.A.M.C. with the rank of captain. For his gallantry at Mametz Wood he was awarded the M.C., and the President of the French Republic honoured him for his work for French civilians behind the lines by awarding him the Médaille des Epidémies and the Médaille de la Reconnaissance Française. Dr. Williams was a member of the University Court of the University of Wales for many years, and was vice-chairman of the Council of the Welsh National School of Medicine from its creation in 1930. The University conferred the honorary degree of LL.D. on him in 1947. He had also been associated with the Welsh National Memorial for the Prevention and Treatment of Tuberculosis from its inauguration in 1912, serving on the council and on many committees.

A deeply religious man, Llewelyn Williams did a great deal of work for the Church in the mission field. He was an elder of his church, and spoke up and down the land on temperance and purity to enthusiastic gatherings of young people. On his retirement in 1935 he was appointed a member of the commission sent out by the Presbyterian Church of Wales to investigate their mission fields in India. When the second world war came in 1939 Llewelyn Williams, although 70 years of age, worked unceasingly on medical boards, making the difficult journey to Wrexham on six days a week from his pleasant home at Old Colwyn. To the end his interest in the University and the medical school continued. He will be greatly missed in Wales. He leaves two sons and a daughter.

Professor R. M. F. Picken writes: Public health and medical education in Wales have lost a staunch supporter by the recent death of Dr. David Llewelyn Williams. For many years he held a unique position in Wales. He was its first county medical officer when he was appointed to that post in Denbighshire, and, early recognizing the importance of public education in health, he travelled widely in North Wales in order to address meetings on the subject in the Welsh language. It would be impossible to overestimate the value of his influence in this direction. It was enhanced by the fact that he was not only deeply religious and had access to the congregations of the chapels throughout Wales, but was also a man of great physical

and moral courage, as his record in the first world war showed. His addresses were supplemented by pamphlets on healthy living, written in the Welsh language. When he became medical member of the Welsh Board of Health at its inception, he was responsible for the medical work of National Health Insurance as well as the supervision, inspection, and scrutiny of the public health work of the local authorities. He was the most approachable of men, and his advice was readily available to medical officers of health on the many difficult problems facing them during a period of rapid expansion of the service. Dr. Llewelyn Williams took a keen interest in medical education in Wales and supported from the time of the Royal Commission's Report in 1918 the proposal that there should be a Welsh National School of Medicine within the University of Wales. When it was ultimately established he became one of the first members of its council and subsequently its vice-chairman, an office which he filled with distinction and retained till his death. It was a matter of great satisfaction to the school that his services to the University were recognized by the award of the honorary degree of doctor of laws.

OWEN W. RICHARDS, C.M.G., D.S.O., D.M., M.Ch., F.R.C.S.

Sir Gordon Gordon-Taylor writes: Your obituary notice (May 21, p. 915) of Owen W. Richards prompts the following additional note. We had in the former War Collection at the Royal College of Surgeons of England several of his early specimens of successful resections of bowel, one of which (W.O. Coll. R.C.S. 865) was described in the following words: "Portion of small intestine showing twenty wounds produced by a fragment of shell. The piece of bowel which is 6 feet in length was successfully excised by Owen Richards, March 18, 1915. This was the first successful case of bowel injury dealt with on the British Front. Patient walked back with his intestines outside his abdomen, because he 'wanted to die in his own lines.'" The War Collection was completely destroyed by aerial bombs in May, 1941, and this historic specimen perished, but an illustration fortunately survives. Richards and the other "casualty clearing surgeons" were well acquainted with ileus, but their work was done in days before continuous gastric suction had even been dreamed of, and in the early war surgery of 1915 Owen Richards thought he had found an answer to the problem in extensive intestinal resection, carried wide especially on the proximal side of the damaged bowel, this procedure being based on Barker's teaching in cases of strangulated hernia where intestinal ablation was necessary. Greater experience, however, led Richards subsequently to discard this opinion and practice. To me his name is specially associated with Barlin and 6 C.C.S. in the First Army area, where for more than two years he had associated with him another fine surgeon, Tudor Edwards, who always considered himself most fortunate in this particular surgical environment. What a scintillating constellation of brilliant surgeons revolved round Cuthbert Wallace in the old First Army! There was none to match it for wealth of surgical talent. One of Richards's aphorisms relating to abdominal cases swayed the decisions of forward surgeons when overwhelmed with multitudinous and urgent cases: "It will be wisest to set aside those with abdominal wounds that are too late, too bad, or too high up." Owen Richards and Cuthbert Wallace—wartime abdominal surgeons owe much to the vision and practice of the former and the inspiration and leadership of the latter. *Ne obliviscaris.*

Dr. DONALD SARGENSON TWIGG died suddenly on Jan. 23. Dr. Twigg received his medical education at the University of Sheffield and took the conjoint diploma in 1914. He served as house-surgeon and house-physician at the Royal Hospital, Sheffield, and on the outbreak of the first world war joined the 3rd W.R. field ambulance. He served in France until the end of the war and then was sent out to Russia. After his demobilization in 1919 he started in practice at Hartington, and from then to the time of his death gave devoted service to the patients in his extensive practice in Derbyshire and North Staffordshire. During the second world war he was M.O. to the 10th Derbyshire Battalion of the Home Guard. He was hard at work up to the day of his death, which came as a great shock to his friends and patients. He leaves a widow, to whom the sympathy of all his colleagues will be extended.—J. H. C.

Medico-Legal

CUMULATIVE ACCIDENTS

[FROM OUR MEDICO-LEGAL CORRESPONDENT].

The Workmen's Compensation Acts allow compensation for personal injury by accident arising out of and in the course of the employment. From early in their history the courts, desiring to give injured workmen every possible benefit of the Acts, have tended to widen the concept of "accident" to include a number of mishaps which, resulting from cumulative processes, could not even by a great stretch of imagination have been called accidents by an ordinary person. These "accidents" have included infective diseases. In 1905 a workman who contracted anthrax was held to have suffered an injury by accident, the accident being constituted by the entry of the bacillus. Hernia and Raynaud's disease following the continual impact of pneumatic tools have both recently been called accidents. The latest development in construing infections as "accidents" was that in which the Court of Appeal, by two to one, granted compensation to a nurse who had contracted tuberculosis while nursing tuberculous patients.[1]

Lords Justices Cohen and Denning agreed with the finding of the county court judge that every time the nurse inhaled bacilli an accident was constituted. Though it might not be possible to fix the exact dates when the accidents occurred, they all took place in the course of her employment, and the effect was due to one or more of them. Lord Justice Bucknill dissented, holding that the disease was the result of a gradual process of breathing air containing noxious bacilli, and that there was no evidence to put it into the category of accidents. Leave was given to the corporation to appeal to the House of Lords. One must not presume to anticipate their Lordships' decision, but it is not many months since they refused compensation to a workman who had contracted silicosis at work.[2]

[1] *Pyrah* v. *Doncaster Corporation; Yorkshire Post*, March 18, 1949.
[2] *Roberts* v. *Dorothea Slate Quarries; British Medical Journal*, 1948, **2**, 664.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on April 28 the following degrees were conferred:

B.M.—A. C. M. Mann, M. I. Davies, K. B. Taylor, *M. W. Glossop.
* In absence.

UNIVERSITY OF CAMBRIDGE

The following medical degrees were conferred in Congregation on May 7:

M.D.—V. N. Fenton, R. J. F. H. Pinsent.
M.CHIR.—H. W. A. Baron.
M.B., B.CHIR.—*B. K. Madden, G. B. Barker.
* By proxy.

UNIVERSITY OF GLASGOW

The following degrees were conferred on April 30:

M.D.—Catherine I. Blyth, [1] T. McLardy, D. McPhee, [1] R. A. Shanks, [2] G. T. Stewart, [3] D. Struthers, [2 4] C. Harris (Montreal), [3 4] Jane H. Short (née Merry) (South China), [3 4] W. Laurie (Tanganyika).
CH.M.—[3] T. L. Chapman.
[1] With honours. [2] With high commendation. [3] With commendation. [4] *In absentia.*

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*With Mental Diseases (Psychiatry) in Part B:* W. W. Black, W. A. Ll. Bowen, F. H. Edwards, A. D. Forrest, P. M. Jeavons, J. D. Lucy, Betty E. A. Magill, D. V. Martin, J. Merry, P. Pinkerton, H. H. Robinson, J. Todd, L. P. Varma, J. M. White. *Part A only:* J. A. Ardis, A. A. Aziz, E. Brenman, W. Calder, K. C. S. Edwards, H. V. W. Elwell, J. A. Ewing, J. Hönig, D. Irwin, S. Jacobson, Elisabeth Kramer, J. D. Morrissey, B. A. Pomryn, A. D. Weatherhead, C. H. A. Wedeles, E. Wolf, L. Wolman.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated:

DIPLOMA IN MEDICAL RADIODIAGNOSIS.—*Part I:* A. C. E. Cole, J. B. Fox. *Part II:* J. H. E. Bergin, W. R. Cole.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Election of Fellows

At a quarterly Comitia of the College held on April 28, with the President, Lord Moran, in the chair, the following were elected Fellows:

J. G. Hislop, M.B. Melbourne (Australia); C. E. Kellet, M.D. (Northumberland); A. J. Hawe, M.D. (Africa); Eleanor M. Creak, M.D. (London); G. S. Hall, M.D. (Warwickshire); L. H. Howells, M.D. (Cardiff); G. H. Jennings, M.D. (Middlesex); A. D. C. Bell, D.M. (London); E. W. Jones, M.D. (Liverpool); R. A. Jones, M.D. (Suffolk); A. W. Morrow, M.B. Sydney (Australia); W. W. Sargant, M.B. (Surrey); A. Kennedy, M.D. (Northumberland); C. A. Clarke, M.D. (Liverpool); Ciceley D. Williams, D.M. (Switzerland); E. G. Sayers, M.B. New Zealand (New Zealand); E. P. Sharpey-Schafer, M.R.C.P. (London); M. L. Thomson, M.D. (Manchester); Surgeon Captain R. W. Mussen, M.D. (Chatham); E. M. Buzzard, B.M. (Oxford); F. D. Hart, M.D. (London); M. C. G. Israels, M.D. (Cheshire); E. W. Hart, M.D. (London); H. Nicholson, M.D. (London); Helen E. Dimsdale, M.D. (London); W. E. Gibb, D.M. (London); J. D. N. Hill, M.B. (London); S. Oram, M.D. (London); H. W. Fullerton, M.D. (Aberdeen); T. A. Kemp, M.B. (Middlesex); J. A. Fraser Roberts, M.D. (London); Hashim Al-Witry, M.D. (Iraq); Catherine Chisholm, M.D. (Manchester); A. D. Gardner, D.M. (Oxford); S. A. Smith, M.B. Sydney (Australia).

Sir Arthur MacNalty and Dr. C. E. Lakin were appointed as representatives on the Council of the Imperial Cancer Research Fund.

Dr. B. T. Parsons-Smith was reappointed as representative on the Council of the Queen's Institute of District Nursing.

Dr. J. St. C. Elkington was appointed as representative on the Regional Postgraduate Committee of the South-West Metropolitan Region.

Dr. R. H. Dobbs was appointed to represent the College at the Annual Conference on Maternity and Child Welfare to be held in London from June 22 to 24.

Membership

The following candidates, having satisfied the Censors' Board, were elected Members:

C. Abraham, L.R.C.P., P. G. Arblaster, M.B., M. Atkinson, M.B., G. M. Bailey, M.B., A. J. Barnett, M.D. Melbourne, F. A. Binks, M.D., A. C. Boyle, M.B., P. T. Boyle, M.B., J. Braham, M.D. (*in absentia*), T. M. Brand, M.B., H. Brebner, M.B., H. G. Bremner, M.B. New Zealand, Lieutenant-Colonel F. K. Bush, M.B. Melbourne, R.A.M.C. (*in absentia*), Major I. W. Caldwell, M.B., R.A.M.C., D. G. Cameron, M.D. McGill, R. H. Caughey, M.B. New Zealand, P. J. R. Challen, L.R.C.P., S. S. Chatterjee, M.B. Patna, J. B. Cook, M.B., J. P. Currie, M.D., K. K. Datey, M.B. Bombay, I. M. P. Dawson, M.B., I. S. Eve, M.B., E. L. Feinmann, M.B., J. Fielding, L.R.C.P., J. W. B. Forshaw, M.B., R. S. Francis, M.B., J. G. Gibson, M.D., R. C. Gledhill, M.B., M. E. H. Halford, M.B., P. J. Hare, M.D., D. G. F. Harriman, M.D., G. P. Hartigan, M.D., S. H. C. Hawes, M.B. New Zealand, D. G. T. Hicks, B.M., J. Higginson, M.B., J. M. Hill, M.B., R. G. Howell, B.M., M. Ibrahim, M.B. Calcutta, G. Ismay, M.B., G. T. James, M.B., C. L. Joiner, M.B., N. R. Konar, M.D. Calcutta, B. M. Laurance, M.B., J. A. Litchfield, M.B., N. D. McCreath, M.B. New Zealand, K. M. Mackenzie, M.D., C. B. McKerrow, M.B., J. Macnamara, M.B. N.U.I., B. McNicholl, M.D. N.U.I., E. G. McQueen, M.B. Sydney, H. A. Magnus, M.D., L. Mandel, M.B., J. R. Martin, M.D. McGill, R. M. Mayon-White, M.D., R. W. Meikle, M.B., G. Mundel, M.B. Witwatersrand, D. S. Munro, M.B., M. J. Murray, M.B. New Zealand, Sylvia N. Nabarro, M.B., T. N. Nouth-Misir, M.B., D. L. Ovedoff, M.B. Witwatersrand, P. J. Parsons, M.D. Melbourne, R. B. Raffle, M.B., D. L. Rees, M.B., T. A. Richards, M.B., P. W. Robertson, M.B., B. S. Rose, M.B., C. M. Ross, M.B., A. M. Rudolph, M.B. Witwatersrand, I. A. Short, M.B., Patricia D. Shurly, M.B., J. H. Simpson, M.B., P. A. J. Smith, M.B., G. E. Spear, M.B., B. R. Sreenivasan, L.M.S. Singapore, L. B. Sunn, M.B. Witwatersrand, D. M. E. Thomas, M.B., M. Thompson, M.D., L. J. Topham, M.B., P. S. Tweedy, M.B., G. H. Watson, M.B., A. J. Wilmot, B.M., J. D. Woods, M.B. Witwatersrand.

Licences

Licences to practise were conferred upon the following 148 candidates (including 28 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and who have complied with the necessary By-laws:

D. I. Acres, H. J. Andersen, H. C. Anthony, G. K. Barker, Rosemary E. Barker, June E. Bartlett, B. J. Batt, J. D. Beecroft, B. S. Bendeth, C. A. B. Bernstein, E. Beswick, Margaret V. Bickerton, Anne M. Booth, S. Boydell, E. I. Brentnall, R. McL. Brown, P. Buri, R. Buri, Sheila G. S. Burnie, J. L. Butler, Maria J. Cahn, K. J. M. Carruthers, R. H. Carruthers, G. Castle, P. R. Chalk, D. G. Chalmers, Elizabeth P. Chisholm, B. G. B. Christie, F. R. Coffin, C. J. Cohen, P. B. Cook, B. E. D. Cooke, C. P. Cotterill, W. G. Dawson, V. W. M. Drury, Z. M. El Asfoury, F. G. Ellis, C. M. W. Evans, A. R. Evason, C. H. Ewart, E. B. Farrar, Barbara J. Fleming, Mary A. Foley, B. J. Foster, S. Freier, J. M. Frisch, S. I. Fung, E. J. Gammon, A. Gellert, Frances F. Gibbs, A. McD. Gillespie, H. J. Giwelb, A. Gol, P. M. Goodrich, N. D. Gower, J. R. Greaves, E. T. Griffiths, G. W. Hadfield, G. Hands, J. W. S. Harris, C. J. Hart, G. E. Heald, D. B. Henry, N. Ll. Higgins, F. J. Hine, E. R. S. Hooper, H. I. Howard, Margaret O. Hunt, Brenda James, June D. James, M. E. Johnston, J. A. B. Jones, Sylvia Kershaw, N. G. Kirby, M. D. Kochan, Ursula M. Kynoch, B. S. Laing, W. P. Lambie, J. M. Lancaster, P. F. R. Lankester, Stephanie M. Leese, R. C. Lemon, P. G. W. A. Lommerse, J. Lynfield, E. J. Mann, A. R. Maude, D. Mendel, Elisabeth Monkhouse, O. T. Ll. Morgan, Olive I. Munro, Joan R. Nichols, K. C. Nyman, H. D. Oliver, P. Pearson, D. H. Pettigrew, A. H. Phillips, G. A. Phillips, B. Plant, Sheila M. Pope, Betty E. Powe, Jill Prichards, A. Ramiszwili, D. D. J. Rees, B. B. Reiss, H. H. Richards, A. E. Richardson, P. F. B. Riley, H. E. Roberts, J. D. Rodger, F. C. Rose, M. Rosenfeld, K. G. Rothwell, S. S. Rowell, J. L. Russell, D. E. Sargent, F. G. M. Seager, M. D. Shaerf, Margaret Sheldon, Katherine A. H. Smith, M. H. Southall, L. R. Spencer, B. Spiro, G. C. Squires, R. R. Steinert, J. A. B. Stewart, R. G. M. Stobie, R. A. Struthers, J. H. Swindell, A. W. Taylor, D. B. S. Taylor, J. B. Taylor, R. D. Tiagi, Rita D. C. Tozer, J. D. G. Troup, G. N. Turner, P. M. Twist, Ellen Veldhuyzen, T. Wade West, J. Warren, W. F. Wheeler, W. Whittingham, G. A. Whittle, M. S. G. Worlock, Mary I. Wright, R. Wright, P. M. E. Youngman, Bessie C. Yule, T. Zondek.

Diplomas

Diplomas in Child Health were granted jointly with the Royal College of Surgeons of England to R. G. Dreadon and to the 84 successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of April 30 (p. 784).

Diplomas in Tropical Medicine and Hygiene were granted, jointly with the Royal College of Surgeons of England, to S. A. Kotz and to the 32 successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of April 30 (p. 784); as were the names of the recipients of the Diplomas in Ophthalmic Medicine and Surgery (38), in Physical Medicine (five), and in Medical Radio-Diagnosis (one).

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons of England, to the two successful candidates whose names were printed in a report of the meeting of the Royal College of Surgeons of England in the *Journal* of March 19 (p. 505).

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council held on May 12, with Lord Webb-Johnson, President, in the chair, the Honorary Medal of the College was awarded to Professor F. Wood Jones, Sir William Collins Professor of Anatomy in the College; to Professor W. E. Gye, Director of the Imperial Cancer Research Fund; and to Mr. Arthur Sims, benefactor of the College, who endowed the Commonwealth Travelling Professorship.

The Jacksonian Prize was presented to Mr. H. L. M. Roualle; the John Hunter Medal and Triennial Prize to Mr. P. M. Daniel; and the Begley Prize to Mr. W. H. McBay.

Dr. A. Wai-tak Woo, Mr. R. J. Cann, Professor T. Yeates, and Mr. A. B. Nutt were admitted to the Fellowship, having been elected as medical practitioners of 20 years' standing. Dr. Woo, who made a special journey from Hong Kong to receive the award, is the first Chinese to be elected to the Fellowship.

A Leverhulme Research Scholarship was awarded to A. T. Andreasen.

Diplomas of Membership were granted to the 148 successful candidates whose names are listed above in the report of the meeting of the Royal College of Physicians of London as recipients of the L.R.C.P.

Diplomas of Fellowship in Dental Surgery were granted to Huia M. Pickard, M.R.C.S., L.R.C.P., T. T. Schofield, M.R.C.S., L.R.C.P., and T. H. Blennerhassett, M.R.C.S., L.R.C.P.

A Diploma in Tropical Medicine and Hygiene was granted, jointly with the Royal College of Physicians of London, to S. A. Kotz; in Child Health to R. G. Dreadon; and in Physical Medicine to M. Fletcher.

The following hospitals were recognized under paragraph 23 of the F.R.C.S. regulations: Tindal General Hospital, Aylesbury (house-surgeon); St. Peter's Hospital, Chertsey (registrar and first and second house-surgeon in the Orthopaedic Division); the Guest Hospital, Dudley (first and second house-surgeon); West Norfolk and King's Lynn General Hospital, King's Lynn (resident surgical officer); Royal Lancaster Infirmary, Lancaster (orthopaedic and casualty house-surgeon); the Bolingbroke Hospital, London (resident surgical officer, first, second, and third house-surgeon); Cornelia and East Dorset Hospital, Poole (resident surgical officer, first and second house-surgeon); the Royal Infirmary, Sunderland (resident surgical officer, first, second, and third house-surgeon, and oto-rhino-laryngological house-surgeon).

Professor Robert I. Harris, Associate Professor of Surgery in the University of Toronto, was admitted as an Honorary Fellow of the Royal College of Surgeons of England on April 29, prior to delivering a Hunterian Lecture on spondylolisthesis.

Nearly £2,250,000 worth of streptomycin was supplied to European countries under Marshall Aid in the first year of E.R.P. operations, according to a British United Press report. France alone received £1,500,000 worth and Italy some £500,000 worth. Smaller quantities went to Holland, Austria, and Greece. In addition, France is to receive more than £125,000 worth of U.S. equipment needed for the reconstruction of two French factories to produce streptomycin. These factories, both near Paris, will produce enough of the drug to supply France's minimum needs and at the same time will save valuable Marshall Aid dollars. Cultures for the growth of streptomycin-producing fungus must continue to come from the United States for these factories, however, until France can provide its own cultures.

Medical Notes in Parliament

NURSES BILL

The Nurses Bill was considered by the House of Lords in committee on May 17.

Lord LLEWELLIN moved an amendment to Clause 2 which would put the boards of governors of teaching hospitals into the same category as other authorities. His amendment provided that the standing nurse-training committee for the hospital area should advise and assist boards of governors of teaching hospitals if those boards made a request to the committee. He said it was no use for a committee to approach Guy's or Bart's Hospital and proffer advice to people who were not prepared to receive it. If it was thought that because they held the purse strings the standing nurse-training committees were to dictate to the great teaching hospitals the Bill would not succeed.

Lord SHEPHERD replied that the teaching hospitals were specially designated as future members of the committee and were therefore in a special category. These committees, when established, would probably consist very largely of persons engaged in hospital work. If the regional hospital boards and the boards of governors got together and discussed the interests of their region, there need be no fear of victimization of one side or the other. The Government wanted the relationship of teaching hospitals to the nurse-training committees to be exactly the same as that of the hospital boards. They were anxious to benefit from the experience, influence, and leadership of the teaching hospitals.

Lord Shepherd mentioned that in the North-Western Metropolitan Hospital Board area there were in training 3,179 student nurses and 676 mental nurses. If the hospital services in that area were to be kept going with an efficient nursing service there must be an intake every year of 1,200 on the general nursing side and 450 on the mental nursing side. He feared that if the amendment was accepted a number of hospitals which needed help and assistance might take the opportunity to remain outside.

Lord WEBB-JOHNSON said Lord Shepherd had not indicated the precise composition of a standing nurse-training committee. Rumour had it that the representation of the teaching hospitals would be meagre. He believed that the committee would be practically a committee of the regional board, and the regional board was to be responsible for providing its officers and servants.

Lord LLEWELLIN said that under the Act of 1946 the teaching hospitals went direct to the Ministry and not through the regional boards. Now Parliament was to set up standing nurse-training committees to which teaching hospitals must go if they required any sort of grant. These hospitals feared they would have to go cap in hand to a committee on which they might have perhaps one representative. Lord Llewellin thereupon withdrew his amendment.

On Clause 3 Lord SHEPHERD moved amendments, which were accepted. One of these was drafted, he explained, to ensure that nurses who went through training under an experimental scheme should be given opportunities of becoming really efficient and that the approved schemes should give that guarantee of efficiency.

Proposed Hospital Grants Committee

Lord LUKE then moved to omit Clause 4 and to substitute:

"The Minister may, by order, constitute in accordance with the Schedule of this Act (Constitution of Hospital Grants Committee) a Committee (in this Act referred to as a Hospital Grants Committee) for the purpose of approving expenditure by a Hospital Management Committee appointed by the Regional Hospital Board for the area or by the Board of Governors of a teaching hospital situated in the area, being expenditure:

(*a*) wholly or mainly for the purposes of, or in connexion with, the training of nurses; and

(*b*) of such description as the Minister may specify for the purposes of this subsection."

Lord Luke said it seemed illogical to depart from the principle established by the National Health Service Act of placing teaching hospitals in a separate category and of giving them a certain independence. This Bill sought to give those hospitals money at second hand instead of direct from the Minister. Under the National Health Service Act had there not been co-operation between teaching hospitals and the rest? Why was Parliament now departing from the principle laid down in that Act? The amendment he proposed sought to set up a hospital grants committee to administer the funds required by each institution for the training of nurses. This would leave the standing nurse-training committee and the General Nursing Council entirely free to concentrate on nursing standards, but there would be full consultation between the hospital grants committee and the standing committees.

Lord SHEPHERD said there was a desire that the training of nurses, instead of being provided entirely by the hospitals, should be carried out by a body representative of the nurses and of other bodies but acting independently. To give that independence the expenditure to cover the training of nurses would come from the Government through the General Nursing Council to the training committees. It would not be right to compare the payment of these moneys with the method adopted by the Government in the case of the universities. When the Government decided to place moneys at the disposal of the universities no national organization existed for that purpose, and therefore a body had to be created to carry out the allocation. This was not the case with nurse-training, because the General Nursing Council could well undertake the business of superintending the allocation of Government aid.

There were 600 training schools in this country, and a series of standing nurse-training committees was to be established. These committees would be agents of the General Nursing Council. These training committees would not rule the roast, and the teaching hospitals would not have to go cap in hand to them.

Lord WEBB-JOHNSON said that the University Grants Committee had been conspicuously successful, and its grants enormously benefited medical schools and the medical faculties. The medical profession would have been sorry to see placed in the hands of the General Medical Council the distribution of funds for the benefit of medical education.

Lord MORAN said the original decision to keep teaching hospitals outside the regions was made so that they might continue to give a lead in medical education. Every argument used on the Government side in favour of that course was applicable to the issue now before the House. His friends were concerned to see that the teaching hospitals, which in the past were mainly responsible for progress in the training of nurses, did not lose their opportunities to advance the art of nursing. The analogy between medical education and training of nurses was extremely close.

Lord LLEWELLIN suggested that Lord Luke's amendment should be accepted and that thereafter between the committee and the report stages they should discuss who would be the right people to form the new body.

Lord ADDISON said he had much to do with the creation of the University Grants Committee, and during that period he met a committee of deans of the London teaching hospitals who with one accord exhorted him not to go on with "the dreadful thing." To-day they had the same kind of apprehension. The thirty-six teaching hospitals were not the only hospitals that taught nursing. There were 600 institutions which did that. Why should the people who had been pioneers wish to be isolated from the rest? The only object of the amendment was to put the teaching hospitals in a separate class. But the Government desired the benefit of their guidance and experience in the whole scheme. The Government was willing to have further discussions on the subject, but it must not be understood that it would change its view that its own proposal was the right one.

On a division Clause 4 in its original form was retained by 48 to 19.

Amendments were made in Clause 5, and on Clause 8 the House agreed to an amendment dealing with persons who had not fulfilled all the standards of training.

Lord WEBB-JOHNSON moved to insert after Clause 9 a new clause as follows:

" .—(1) The Council may if they think fit make rules prescribing or approving courses of training and prescribing or approving and for conducting or regulating the conduct of examinations to be undergone and passed by registered nurses desirous of specializing in particular branches of nursing, and may insert in the entry in the register relating to any registered nurse who has undergone the course of training and passed the examination prescribed or approved as aforesaid with respect to any particular branch of nursing such special signification as the Council may determine.

"(2) The provisions of subsections (1) and (2) of section sixteen of the Act of 1943 shall extend and apply to any rules made under this section."

He said anxiety was felt lest nurses sent to fever hospitals or mental hospitals or those nursing children for short periods during their training should thereafter be regarded as experts.

Lord ADDISON said what the Government desired was a good standard qualification. If in the course of time these extras were found to be necessary they could be provided. It would

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not be wise at present to incorporate in the Bill the words proposed by Lord Webb-Johnson.

Lord LLEWELLIN said that in some cases additional certificates were thought to be essential. Would it not be possible for a special certificate to be given for the nursing of infants?

Lord AMULREE said the Hospital for Sick Children in Great Ormond Street and the similar ones in Manchester and Liverpool were at present recognized as full training schools for children's nurses. They should receive an assurance that there was no proposal to change that status.

Lord ADDISON said he had a strong prejudice against the multiplication of trimmings. They should view with misgiving people who collected large numbers of letters after their names. He was willing to discuss the problem again before the report stage. He said he could give Lord Amulree the assurance for which he asked.

Lord WEBB-JOHNSON then withdrew his amendment.

Clause 10 was approved with drafting amendments.

Lord SHEPHERD moved an amendment on Clause 11 to empower the General Nursing Council to charge a fee to organizations which asked for inspection and consideration, even though they were not finally given recognition by the Council. The amendment was agreed to.

Lord WEBB-JOHNSON moved an amendment to ensure that the complete cost of operations by the General Nursing Council under this clause should be borne by the Minister. Lord SHEPHERD said the Government could not accept the amendment, and it was withdrawn. Clause 12 and Clause 13 were approved.

On Clause 14 Lord LLEWELLIN moved an amendment to ensure that the register of nurses should be published once every five years and the Council should not be relieved of their duty to keep an up-to-date list of alterations to the registry. He said that unless there was a register it would be very difficult to run an election for the General Nursing Council. Lord SHEPHERD said that if this amendment and the following one in the name of Lord Wolverton were withdrawn the Government would immediately appoint a working party representing the organizations involved, and he hoped this working party would report in time to permit an amendment being made to the Bill when it reached the House of Commons.

Lord WOLVERTON said his amendment proposed that amending lists should be printed as well as the present register. Lord SHEPHERD said a copy of the existing register could be obtained so long as copies remained. Lists of new registrations and lists of names removed from the register would be published three times a year, after the four-monthly examinations had been held. The amendment was withdrawn and Clauses 14, 15, and 16 were agreed to.

On Clause 17 Lord SHEPHERD explained that the Minister would be prepared to meet expenses incurred by the General Nursing Council in training nurses. Purely professional expenses should be borne by the General Nursing Council out of its own funds. If the Government gave way on this matter it would open the way for demands on the Exchequer from other sources. The clause was agreed to, as was Clause 18, with minor amendments.

A new clause was inserted in the Bill on the motion of Lord SHEPHERD to provide that the Council should annually make a report of their functions in connexion with training nurses during the preceding year, and that the Minister should lay this report before Parliament.

On the second schedule of the Bill Lord LLEWELLIN moved that the majority of each committee should be registered nurses. He said that the British Medical Association, so far as he knew, was entirely composed of qualified doctors. Lord SHEPHERD said the Government accepted the amendment in principle, and suggested a discussion about its wording before the report stage. The amendment was withdrawn and the second schedule was approved.

Lord LUKE moved to insert a new schedule as follows:

"Constitution of the Hospital Grants Committee

"A Hospital Grants Committee shall consist of such number of persons appointed by the Minister of each of the following classes, as may be specified in the order constituting the Committee, that is to say:

(*a*) Persons selected from lists submitted by the Royal College of Nurses,

(*b*) Persons selected from lists submitted by the Central Midwives Board,

(*c*) Persons appointed after consultation with the Minister of Education, and

(*d*) Persons appointed after consultation with such Universities as the Minister thinks fit,

and the said order may contain provisions with respect to the qualifications of members of the Committee."

The amendment was accepted, though Lord SHEPHERD remarked that the Government agreed to it but did not approve of it.

On the third schedule Lord SHEPHERD moved an amendment to ensure that a mental-hospital matron appointed to the Mental Nurses Committee should be the matron of an approved training institution. The amendment was accepted. A second amendment to secure that the chief male nurse appointed to the same committee was a chief male nurse in a mental hospital which was an approved training institution was also accepted. The third schedule and the remaining schedule were approved and the committee stage ended.

Revised Estimates

Answering Mr. SHARP on May 11 Mr. BEVAN stated that regional hospital boards were revising their estimates, subject to a general directive that the welfare of the patients must not be affected. Detailed reports on the effect of the revisions proposed by the Ministry of Health had not yet been made by all boards. In the light of information so far received the Ministry was considering how far the proposed revisions should be carried out. Data were not yet sufficient for comparison of one regional hospital board with another. At least one year's full working was needed before such comparisons could be made.

Parkinson's Disease

Asked by Dr. SEGAL on May 12 whether the claims of Dr. Klemme in America to have cured cases of Parkinson's disease by operative treatment had been substantiated, Mr. BEVAN said the methods were well known but present experience did not justify their general adoption.

Dr. SEGAL asked whether, in view of exaggerated hopes raised by statements in certain sections of the Press, Mr. Bevan would appoint a commission of inquiry into this method of treatment. Mr. BEVAN replied that if he appointed a commission of inquiry each time a newspaper made exaggerated claims for some particular form of therapy he would have a number of commissions running all the time.

Mr. FRANCIS NOEL-BAKER asked whether Mr. Bevan knew that Dr. Voeller, in Germany, had had similar claims made about him. He asked Mr. Bevan to have the claims investigated, and if they were substantiated to make representations to the Treasury to give facilities for people to go to Germany to take this treatment.

Mr. BEVAN replied that that claim was of a different kind entirely. He had previously said that he was having it investigated.

Health Services in Northern Ireland

The number of persons registered with doctors under the Northern Ireland Health Scheme exceeded 1,200,000 and represented about 95% of the population, according to a statement made by the Minister of Health and Local Government in the Northern Ireland Parliament. During the first nine months of the Health Scheme about 230,000 people received dental attention, which was equivalent to more than 20% of the people in a full year. In the same period pharmacists dealt with 2,800,000 prescription forms containing nearly 4,000,000 prescriptions.

If the Hospital Authority's hopes were realized, plans for the construction of new hospitals and the extension of existing establishments would result in the provision of about 300 additional beds this year and about 1,250 during the next five years. At the moment there were 7,840 general beds available, as against 7,590 when the Authority took over control of hospitals. The total number of beds available for cases of tuberculosis was 1,380, or 275 more than when the Authority assumed control. The Authority estimated that about 700 additional beds were required, and it was anticipated that existing plans would provide some 250 to 300 of these within the next year.

Remuneration of General Practitioners

On May 19 Major TUFTON BEAMISH asked whether Mr. Bevan knew that the East Sussex Local Medical Committee, representing about 360 general practitioners in the National Health Service in East Sussex as well as others not in the Service, agreed with the General Medical Services Committee regarding their views following his recent meeting with them to discuss the case for increased remuneration of general practitioners, and what action he proposed to resolve the deadlock.

Mr. BEVAN answered that there was no question of deadlock. He was in the midst of negotiations with the General Medical Services Committee on the remuneration of general practitioners. He preferred to defer his statement till the conclusion of these negotiations.

No. 18

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 7.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.
Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.
A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	21	2	20	2	1	46	4	13	3	—
Deaths		—	2				—	1		
Diphtheria	87	5	31	1	13	143	15	44	6	8
Deaths	3	—	—	—	—	1	1	—	—	—
Dysentery	59	10	41	—	—	108	28	49	2	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	1	—	—	—	—	—	—	—
Deaths		1					—			
Erysipelas			18	5	5			15	8	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				58					23	
Deaths	21	—	5	4	2	30	1	3	—	1
Measles*	9,217	1170	460	227	169	10,156	936	204	116	90
Deaths†			—	3	—			1	—	—
Ophthalmia neonatorum	47	2	9	—	2	59	5	12	1	—
Deaths										
Paratyphoid fever	3	—	2(B)	—	1	5	—	2(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	494	24	8	12	7	509	27	1	4	—
Deaths (from influenza)‡	25	—	2	2	—	4	—	—	—	—
Pneumonia, primary	153	22	159	33	5	172	24	191	31	9
Deaths				7					3	
Polio-encephalitis, acute	1	—				3	—			
Deaths										
Poliomyelitis, acute	13	2	4	1	—	9	1	2	1	—
Deaths§	1	—				1	—			
Puerperal fever		—	10				2	11		—
Deaths										
Puerperal pyrexia‖	91	8	3	—	—	99	9	12	2	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	898	63	126	67	34	1,578	93	249	46	34
Deaths†			—	—	—			1	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	37	—	2	—	—	8	1	—	3	—
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	3,053	196	229	123	76	3,110	221	34	50	15
Deaths	3	1	1	5	—	16	—	—	1	1
Deaths (0–1 year)	259	32	39	25	17	274	21	51	16	14
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,537	699	599	181	124	4,290	639	629	175	137
Annual death rate (per 1,000 persons living)			12·0	11·2				12·7	10·9	
Live births	8,188	1264	1017	484	274	8,307	1292	1055	467	254
Annual rate per 1,000 persons living			20·4	30·0				21·3	29·2	
Stillbirths	218	26	33			237	29	27		
Rate per 1,000 total births (including stillborn)			31					25		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.
† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.
‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.
§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.
‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Smallpox

Four cases of smallpox have now been notified in Liskeard: the original case admitted on May 7 and the three close family contacts who had been isolated in hospital as a precautionary measure. None of the other contacts showed any sign of the disease on the sixteenth day of surveillance.

A case of suspected smallpox has been reported on board the s.s. *Mooltan*, at present outward bound to Australia. The liner left this country on April 28, and this patient was taken ill on May 18.

Discussion of Table

In *England and Wales* there was an increase in the notifications of whooping-cough 148, scarlet fever 113, acute pneumonia 41, typhoid fever 31, and dysentery 21. There was a decrease of 2,219 in the notifications of measles.

The largest declines in the incidence of measles were London 371, Essex 225, Middlesex 185, Lancashire 162, Yorkshire West Riding 139, Cheshire 127, and Sussex 102.

The rise in the notifications of whooping-cough was most marked in the southern section of the country; in the south-western counties 70 more cases were notified than in the preceding week. A small rise in the incidence of scarlet fever was reported from most areas.

Notifications of diphtheria fell to the record low level of 87, which was 5 below the previous lowest total recorded in January of this year.

An outbreak of dysentery affecting 14 persons was notified in Warwickshire, Warwick R.D. The only other large centre of dysentery was London, where 10 cases were notified from eight boroughs. The rise in the notifications of typhoid fever was due to the outbreak in Berkshire (Easthampstead R.D. 15 and Wokingham R.D. 16).

In *Scotland* decreases were recorded in the incidence of measles 53, whooping-cough 20, and scarlet fever 19. There was an increase of 11 in the notifications of diphtheria. The increase in the incidence of diphtheria was contributed by Lanark county and the city of Glasgow. Notifications of dysentery were practically confined to three cities: Glasgow 14, Edinburgh 11, and Dumfries 11.

In *Eire* there were decreases in the incidence of measles 28 and whooping-cough 30. Notifications of diarrhoea and enteritis increased by 21, and the total was the largest in recent months.

In *Northern Ireland* only small variations were reported in the trends of infectious diseases.

Week Ending May 14

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 993, whooping-cough 2,906, diphtheria 90, measles 8,363, acute pneumonia 406, cerebrospinal fever 44, acute poliomyelitis 11, dysentery 77, paratyphoid 10, and typhoid 7.

Medical News

Royal Society of Edinburgh

The following members of the medical profession were elected Fellows of the Royal Society of Edinburgh on March 7: Dr. D. P. Cuthbertson, Dr. A. MacA. Gillespie, O.B.E., Dr. Harold Sington, and Dr. R. H. A. Swain.

New Journal of Medical Records

The Association of Medical Records Officers has started a new quarterly journal called the *Medical Record*, which is issued free to members. It is edited by Mr. D. G. Davies, F.S.S., Records Officer of the United Leeds Hospitals. The journal will give news of the association's activities and provide an opportunity for the exchange of views for those working in medical records departments in hospitals and other medical establishments. Dr. Percy Stocks, Chief Medical Statistician of the General Register Office, contributes an article on "Records and Research," and emphasizes the importance of accurate initial records if statistical treatment of them is to be of use. The journal appropriately includes a crossword puzzle.

To Visit East Africa

Professor R. C. Browne, of the Nuffield Department of Industrial Health, University of Durham, will visit East Africa during June and July under the joint auspices of the Nuffield Foundation and the Colonial Office. He will represent social medicine among a panel of specialists visiting doctors in the Colonial Medical Service.

West London Medico-Chirurgical Society

The annual dinner of the West London Medico-Chirurgical Society was held at the Royal College of Surgeons, Lincoln's Inn Fields, on May 18. Dr. W. S. C. Copeman, the President, and Mrs. Copeman received the guests, who included Lord Moran, Lord Burleigh, Sir William Gilliatt, Sir Cecil Wakeley, Sir Norman Birkett, Mr. Somerville Hastings, M.P., the presidents of various kindred societies, and the editors of the *Lancet* and the *British Medical Journal*. The health of the society was proposed by Lord Burleigh, who took occasion to acknowledge the help given by members of the medical profession in connexion with the recent Olympic Games. He referred in particular to the work of Mr. Arthur Porritt, a member of the society, who was chairman of the medical committee. Dr. Copeman, in response, spoke of the liaison between the society and the British Postgraduate Medical School, as a result of which the society had had a considerable accession of new members, and the dean of the school was present at the dinner that evening not as a guest but in his own right. Lord Moran then presented the triennial gold medal of the society to Professor McCance for his work in the field of nutritional studies. He reminded the company that in the early part of the war Professor McCance had conducted experiments upon himself, living on a starvation diet in order to discover what was the minimum diet compatible with health. In a world menaced by food shortage the work of Professor McCance was of extraordinary value. Professor McCance, in acknowledgment, briefly discussed the special problems of experimentalists in medicine. He laid it down that any experiments made on patients not only must be undertaken with the object of curing the patient but also must proceed in consultation with the patient, who must be regarded not only as a subject but as an ally. He spoke feelingly of the searchings of conscience which this field of medicine demanded—embarrassments from which the ordinary practising physician or surgeon was free. Dr. Doyne Bell proposed the health of the guests. Mr. Justice Birkett, in response, told some excellent after-dinner stories, and also referred to his appearance this year as the society's Cavendish Lecturer. Mr. Somerville Hastings also responded as a member of the governing body of the group of hospitals of which the West London Hospital was one. He said that so far as he had any influence the traditions of the West London Hospital would be maintained in the new regime.

More Rehabilitation

The Minister of Health is encouraging hospitals in the Service to increase facilities for rehabilitation. He has sent a memorandum to hospital boards and management committees saying, "The Hospital Service is responsible for the medical aspect of the problem in respect of the prevention or limitation of disablement by efficient medical rehabilitation concurrently with medical or surgical treatment. It is for the Health Service to prevent the large number of patients whose prolonged and ill-directed convalescence, after relatively minor disorders, causes so much absenteeism and often sows the seeds of a permanent disability neurosis." He emphasizes that practitioners should see patients through to the point where they can either resume their former employment or be passed to the Ministry of Labour's Displacement Resettlement Officers for placing in some suitable alternative occupation. The memorandum makes the following suggestions: (1) Appointment by each regional hospital board of a small committee to advise on development of facilities for medical rehabilitation; (2) nomination of responsible member of the medical staff at all larger hospitals to supervise the rehabilitation services; (3) extension of arrangements for long-stay patients to undertake productive industrial work; (4) holding short courses for doctors to demonstrate modern methods of rehabilitation and resettlement.

Book on Health Service

A new book entitled *The National Health Service*, by Dr. Charles Hill, secretary of the British Medical Association, and Mr. John Woodcock, will be published at 16s. by Christopher Johnson, Ltd., at the end of June. The authors expound in simple terms the National Health Service Act and its subordinate legislation, with reference to the Scottish Act where its provisions differ from those of the English Act.

The Osler Club

At the 83rd meeting of the club on May 13 Dr. D. Evan Bedford gave an illustrated address entitled "The Ancient Art of Feeling the Pulse." He reviewed the history of pulse-taking from the time of the Chinese physicians, who wrote on the subject 2,000 years B.C., to Sir James Mackenzie's work, published at the beginning of this century. He also showed books on this subject from his own library. Mr. Geraint Griffith gave a biographical sketch of Sir James Mackenzie, and Mr. Peter Thomas spoke on "Inventors of the Sphygmograph." Lord Amulree spoke briefly of Mackenzie, and concluded a most interesting evening by demonstrating his uncle's original polygraph, together with some of his tracings and notebooks.

Nurses' Pay Increased

Salaries for hospital nurses have been increased with retrospective effect from Feb. 1 as shown in the following tables:

WOMEN

	Previous Annual Rates	New Annual Rates
Ward sister	Cash salary .. £180–260 Emoluments .. £120	£375 rising by 7 annual increments of £15 and 1 increment of £20 to £500
Staff nurse	Cash salary .. £140–200 Emoluments .. £100	£315 rising by 8 annual increments of £12 10s. to £415
Enrolled assistant nurse	Cash salary .. £120–170 Emoluments .. £100	£285 rising by 8 annual increments of £12 10s. to £385

MEN

	Previous Annual Rates on Non-resident Basis	New Annual Rates
Charge nurse	£312–380	£385 rising by 7 annual increments of £15 and 1 increment of £10 to £500
Staff nurse	£260–312	£325 rising by 8 annual increments of £12 10s. to £425
Enrolled assistant nurse	£239–291	£300 rising by 8 annual increments of £12 10s. to £400

Ward sisters and charge nurses will pay £130 a year (others £120) for board and lodging and other services provided by the hospital. Non-resident nurses will pay £20 a year for meals on duty and the use and laundry of uniform.

The Association of the British Pharmaceutical Industry

At the annual dinner of the Association of the British Pharmaceutical Industry, which was held at the Savoy Hotel on April 27, several speakers referred to the need for co-operation between the medical and pharmaceutical professions. In proposing the toast of the Pharmaceutical Services the chairman of the association, Mr. C. A. O. Rideal, spoke of the great need for standardization in the pharmaceutical industry. One of the problems was a complicated system of weights and measures, including some peculiarly named containers. The doctors' liking for writing their scripts in Latin was an added difficulty. In reply Dr. H. Davis, chief pharmacist to the Ministry of Health, paid tribute to all who had helped to provide the pharmaceutical services of the N.H.S. so successfully up to date. Mr. J. C. Hanbury proposed the health of the guests, and said that in facing the problems of the day in the N.H.S. the medical and pharmaceutical professions shared much common ground. Sir Harry Jephcott, in reply, said that the pharmaceutical industry was making every endeavour to co-operate in the steps being taken towards social and industrial progress. Dr. D. P. Stevenson, Deputy Secretary of the B.M.A., proposed the toast of the Association of the British Pharmaceutical Industry. Both associations, he said, were quietly performing the task of looking after the interests of the public. This did not stop them from being regarded as Aunt Sallies at times, but nevertheless they had the satisfaction of knowing that in the field of humanity their work was of great importance. The pharmaceutical industry had never failed the medical profession yet. One of the rights which the doctor would always claim for himself was his absolute freedom to prescribe any drug in any form which he felt was needed by his patient. In his reply Mr. I. V. L. Fergusson said that for some of the services provided under the N.H.S. the patient had to wait days, weeks, or months, but from the individual doctor and chemist he could always expect to obtain immediate help.

Pharmaceutical School

The Pharmaceutical Society of Great Britain has authorized its council to sell to the University of London for £258,000 the new building going up in Brunswick Square, begun before the war to house the society's college, a school of the University of London, and its other activities. The school, now an independent institution, will occupy the building when completed, and the question of the society's own headquarters is under consideration.

Markle Foundation

Thirteen young scientists have been appointed as the second group of scholars in medical science, under the plan begun in 1948 by the John and Mary R. Markle Foundation (14, Wall Street, New York, 5) to assist qualified men and women wishing to remain in academic medicine. The scholars were selected from candidates nominated by accredited medical schools in the United States and Canada. The sum of $325,000 has been appropriated for their support, to be allotted in grants of $25,000, each at the rate of $5,000 a year, to the medical schools in which they now hold faculty appointments. The thirteen scholars include two who are on the British *Medical*

Register—namely, Dr. John Davis Green, whose interest is in anatomy and physiology, and Dr. Donald Richards Wilson, internal medicine and endocrinology. The grant for Dr. Green has been allotted to the Wayne University College of Medicine, Detroit, and that for Dr. Wilson to the University of Alberta Faculty of Medicine, Edmonton.

Wills

Sir William Hale-White, for many years physician at Guy's Hospital, left £62,920. Dr. John Richard Tarrant Conner, formerly editor of the *Clinical Journal*, left £1,082; Major-General John Weir West, formerly professor of military surgery at the Royal Army Medical School, £4,920; and Dr. Arthur Graham Foljambe Forster, of Cheltenham, £28,036.

COMING EVENTS

Consultants' Meeting at Birmingham

There will be a general meeting of consultants in the Birmingham Region No. 12, at Nuffield House, Queen Elizabeth's Hospital, Birmingham, on Saturday, June 11, at 2.30 p.m., to discuss the proposed terms of service.

Cambridge Graduates' Medical Club

The Cambridge Graduates' Medical Club, which was founded in 1883, will hold its annual dinner at Cambridge in July. The council of the club believes that many Cambridge men who graduated in the war years are unaware of the club's existence, the objects of which are to further the interests of the medical and natural science schools of the University and to promote good fellowship among its graduates. Medically qualified male graduates are eligible for election, the fee for life membership being £1 1s. Those interested should get in touch with their hospital representative or with one of the honorary secretaries, Dr. R. A. Hickling, 99, Harley Street, London, W.1, or Dr. A. Willcox, 66, Harley Street, London, W.1.

SOCIETIES AND LECTURES

Monday

EDINBURGH UNIVERSITY.—At Physiology Lecture Theatre, University New Buildings, Teviot Place, Edinburgh, May 30, 5 p.m., "*Salerno: The First Medical School*," by Dr. Douglas Guthrie.

LONDON UNIVERSITY.—At Institute of Neurology, National Hospital, Queen Square, London, W.C., May 30, 5 p.m., "*Arteriovenous Aneurysms of the Brain*," by Professor H. Olivecrona (Stockholm).

LONDON: UNIVERSITY COLLEGE.—At Physiology Theatre, Gower Street, W.C., May 30, 4.45 p.m., "*Selective Toxicity with Special Reference to Chemotherapy*," by Professor Adrien Albert.

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, University New Buildings, May 31, 5 p.m., "*Some Observations on Paroxysmal Tachycardia*," by Dr. I. G. W. Hill.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—May 31, 5 p.m., "*Lupus Erythematosus*," by Dr. H. J. Wallace.

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., May 31, (1) 11 a.m., "*Aetiology and Diagnosis of Gonorrhoea*," by Dr. W. N. Mascall; (2) 5 p.m., "*Penicillin and Sulphonamide Therapy in Infections of the Urinary Tract*," by Dr. A. H. Harkness.

LONDON: UNIVERSITY COLLEGE.—At Physiology Theatre, Gower Street, W.C., May 31, 5.15 p.m., "*Muscular Contraction*," by Professor A. V. Hill.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—At Royal Society of Medicine, 1, Wimpole Street, London, W., May 31, 5.10 p.m., joint meeting of Society with Section of Experimental Medicine of Royal Society of Medicine. "*Recent Advances in the Study of Venereal Diseases*," by Dr. J. Earle Moore (Baltimore).

WESTMINSTER HOSPITAL SCHOOL OF MEDICINE, Meyerstein Lecture Theatre, Horseferry Road, London, S.W.—May 31, 5.30 p.m., clinico-pathological meeting. Discussion: "*Appendicitis*," by Mr. G. T. Mullally.

WRIGHT-FLEMING INSTITUTE OF MICROBIOLOGY, St. Mary's Hospital Medical School, Paddington, W.—May 31, 5 p.m., "*The Nature of Plant Viruses*," by Dr. F. C. Bawden, F.R.S.

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., June 1, (1) 11 a.m., "*Signs, Symptoms, and Asymptomatic Carrier State of Gonorrhoea*," by Dr. A. H. Harkness; (2) 5 p.m., "*Congenital Malformations of the Bladder and Urethra*," by Mr. J. E. Semple.

Thursday

CLINICAL SOCIETY OF THE ROYAL FREE HOSPITAL, Gray's Inn Road, London, W.C.—June 2, 5.15 p.m., "*Mammaplasty*," by Dr. Ernesto F. Malbec (Director of Plastic Surgery at Hospital of Ramos Mejia, Buenos Aires). Visitors welcomed.

EDINBURGH UNIVERSITY.—At Anatomy Theatre, University New Buildings, Teviot Place, June 2, 5 p.m., "*Chemotherapy in Reticulosis*," Honyman Gillespie Lecture by Dr. James Innes.

FACULTY OF HOMOEOPATHY.—At Royal London Homoeopathic Hospital, Great Ormond Street, London, W.C., June 2, 5 p.m., "*The Problem of Mental Illness*," by Dr. T. H. B. Gladstone.

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., June 2, (1) 11 a.m., "*Pathology of Gonorrhoea*," by Dr. A. H. Harkness; (2) 5 p.m., "*Diseases of the Female Urethra*," by Mr. H. G. Hanley.

LONDON COUNTY MEDICAL SOCIETY.—At Southern Hospital, Dartford, Kent, June 2, 3 p.m., clinical meeting.

LONDON UNIVERSITY.—At Institute of Neurology, National Hospital, Queen Square, London, W.C., June 2, 5 p.m., "*Intermittent Claudication*," by Professor A. M. Boyd.

LONDON: UNIVERSITY COLLEGE.—At Physiology Theatre, Gower Street, W.C., June 2, 4.45 p.m., "*Some Aspects of Nitrogen Metabolism in the Mammal*," by Dr. J. S. Bach.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—June 2, 4.30 p.m., "*Neurology*," lecture-demonstration by Dr. D. J. Williams.

Friday

WHIPPS CROSS HOSPITAL MEDICAL SOCIETY.—June 3, 8.30 p.m., "*Modern Diagnostic Radiology*," by Dr. G. White Phillips.

APPOINTMENTS

LEWIS, CECIL W. D., M.B., B.Ch., F.R.C.S., Junior Assistant, Surgical Unit, Royal Infirmary, Cardiff.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—*House-surgeon*: Miss J. F. Cambell, M.B., Ch.B. *House-physician*: D. Q. Trounce, M.B., B.S., M.R.C.P., D.C.H. *Registrar to Department of Plastic Surgery*: M. H. Kinmonth, M.B., F.R.C.S.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Brinton.—On May 15, 1949, in London, to the wife of Dr. W. D. Brinton, a daughter.

Fraser.—On May 3, 1949, at Aberdeen, to Dr. Mary E. Fraser (née Chalmers), wife of R. J. A. Fraser, F.R.C.S.Ed., a daughter.

Friedlander.—On May 15, 1949, at Lorna Lodge, 133, Barlow Moor Road, Manchester, 20, to Jean L. Broughton, M.R.C.S., L.R.C.P., wife of H. A. Friedlander, M.R.C.S., L.R.C.P., a daughter.

Lloyd-Owen.—On May 9, 1949, at the Lindo Wing, St. Mary's Hospital, to Helen, wife of Dr. Morus Lloyd-Owen, a daughter.

Macrae.—On April 8, 1949, to Dr. and Mrs. J. O. F. Macrae, Church of Scotland Mission, Ichang, Hupeh, China, a daughter—Gillian Kirsteen.

MacVine.—On April 29, 1949, at the Central Middlesex Hospital, London, N.W., to Daphne (née Vieusseux), wife of J. Sinclair MacVine, F.R.C.S.Ed., a second daughter—Virginia Anne.

Schorstein.—On May 8, 1949, to Mr. and Mrs. J. Schorstein, of Dumgoyne Cottage, Dumgoyne, Stirlingshire, a son.

Smallpeice.—On May 17, 1949, to Olive L. Smallpeice, L.D.S., R.C.S.Eng. (née James), wife of Dr. John Smallpeice, a son.

DEATHS

Atkinson.—On May 7, 1949, Hugh Norman Crowley Atkinson, M.R.C.S., L.R.C.P., of Queniborough, Leicestershire.

Babonau.—On May 9, 1949, at "Ruapuna," Songhor, Kenya, Alexander Frederick Babonau, C.I.E., O.B.E., M.B., Ch.B., Colonel, I.M.S.(ret.).

Bates.—On April 7, 1949, at King George V Hospital, Durban, Robert Fosbrooke Bates, M.B., aged 31.

Brasher.—On May 11, 1949, at St. Leonards, Charles William James Brasher, M.D., aged 83.

Clark.—On May 10, 1949, at Crossways, Brimstage Road, Spital, Bromborough, Cheshire, George Clark, M.B., Ch.B., D.T.M., D.T.H., D.P.H.

Cookson.—On May 15, 1949, at Toronto, Canada, Henry Anstey Cookson, C.B.E., F.R.C.S.Ed., F.R.C.P.Ed., F.R.S.Ed.

Copeman.—On May 6, 1949, at Salisbury Lodge, Hove, Alfred Heathcote Copeman, M.D., aged 80.

Court.—On May 3, 1949, at Raigmore Hospital, Inverness, Edward Percy Court, M.R.C.S., L.R.C.P.

Dalzell.—On May 18, 1949, Philip Dalzell, M.B., B.S., of 1, Raymond Road, Wimbledon, London, S.W., aged 43.

Davidson.—On May 7, 1949, at Woodville, Shettleston Road, Glasgow, E.2, William Tennent Gairdner Davidson, M.D., D.P.H.

Edleston.—On May 8, 1949, at The Mount, Hatherton, Nantwich, Richard Shafto Chambers Edleston, M.R.C.S., L.R.C.P.

Goss.—On May 12, 1949, at R.N. Hospital, Plymouth, Leslie Stewart Goss, O.B.E., L.M.S.S.A., Surgeon-Captain R.N. Ret.

Hoffman.—On May 17, 1949, at Axminster Cottage Hospital, Harry Drummond Hoffman, M.B., aged 72.

Leicester.—On May 19, 1949, at Clare Cottage, Cold Ash, Newbury, Berks, John Cyril Holdich Leicester, M.D., F.R.C.P., F.R.C.S., Lieutenant-Colonel, I.M.S.(ret.), aged 77.

Mackay.—On May 8, 1949, at 9, Belford Avenue, Edinburgh, George Mackay, M.D., F.R.C.S.Ed.

McKee.—On May 7, 1949, at St. Mary's Bay, Kent, William Cowan McKee, M.B., B.Ch., Lieutenant-Colonel I.M.S., retired.

Mackie.—On May 8, 1949, at a nursing home, Edinburgh, Elspeth MacLeod, M.B., Ch.B., wife of F. J. B. Mackie, 1, McLaren Road, Edinburgh.

Maclagan.—On May 8, 1949, at Kello Hospital, Biggar, Lanarkshire, Patrick Alexander Maclagan, M.B., Ch.B.Ed.

Macnaughton-Jones.—On May 15, 1949, at Amersham, Henry Macnaughton-Jones, M.B., B.Ch., aged 80.

Martin.—On May 22, 1949, at 10, York Gate, London, N.W.1, Ernest William Martin, M.B., Ch.B., aged 72.

Martland.—On May 16, 1949, at a nursing-home near Darlington, William Lionel Martland, M.B., Ch.B., aged 50.

Menzies.—On May 14, 1949, at 41, Melbury Court, London, W., Sir Frederick Norton Kay Menzies, K.B.E., M.D., F.R.C.P., aged 73.

Phipps.—On May 14, 1949, Forder, Cawsand, H. H. Phipps, M.R.C.S., L.R.C.P., aged 85.

Rogers.—On May 14, 1949, at Namouna, West Cliff Road, Bournemouth, Kenneth Rogers, O.B.E., M.D.

Williams.—On May 12, 1949, at Liverpool, David Llewelyn Williams, C.B.E., M.C., LL.D., F.R.C.S.Ed., aged 79.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Treatment of Osteoarthritis

Q.—*What is the usual modern treatment for osteoarthritis of the knee-joint?*

A.—The treatment of osteoarthritis of the knee-joint may be non-surgical or surgical.

Non-surgical Treatment.—It should be appreciated that the joint changes of osteoarthritis are permanent, and treatment can be only palliative. The following measures are available, and each has its indications: (1) Rest.—This will always lead to improvement in the symptoms. In some cases avoidance of prolonged standing or walking is all that is required. In the occasional case, particularly after recent injury or when there is some degree of fixed flexion deformity, temporary immobilization in plaster—if necessary after gentle straightening of the knee—is of value. (2) Physiotherapy.—The most effective form of physiotherapy is a combination of short-wave diathermy with intensive active exercises designed to improve the muscle control of the knee. In cases of moderate severity this often gives satisfactory relief, and it is probably the most widely applicable method of conservative treatment. (3) Acid Injections.—10 to 20 ml. of acid potassium phosphate or other appropriate acid solution—often combined with procaine—is injected into the joint. A course of treatment commonly consists of six to twelve injections at weekly intervals. The method is still on trial; while improvement has been claimed by a number of workers, there is probably a majority of orthopaedic surgeons who feel that its value is very doubtful. (4) *X*-ray Therapy.—Improvement has been obtained, but not constantly. This treatment should be tried only when other measures have failed to secure adequate relief.

Surgical Treatment.—Operative measures are not often required, though in the occasional case with severe disablement the result may be eminently satisfactory to the patient. (1) Excision of the patella is indicated in certain cases where the arthritic process is confined to the patello-femoral compartment—particularly after malunited fractures of the patella with distortion of its articular surface; but it is unlikely to be of benefit when the arthritis has reached an advanced stage. (2) Arthrodesis is advised only when pain or deformity is causing such a severe degree of crippling that a stiff knee becomes acceptable to the patient. In cases of this severe type—where degenerative arthritis is often secondary to a previously existing infective arthritis—the results of arthrodesis are often very satisfactory, sometimes even in bilateral cases. (3) Arthroplasty gives such inconstant results that it is indicated only exceptionally, if at all. It is possible that in the future improved methods of performing the operation may increase its usefulness.

Post-gastrectomy Diet

Q.—*What diet and what medicine should be prescribed for a patient who has just had a partial gastrectomy?*

A.—It is assumed that the question does not refer to the immediate post-operative period but to the time, 14 to 21 days after operation, when the patient is beginning to lead an active life again. At this stage the usual type of "post-Lenhartz" diet is suitable; meals should be frequent, regularly spaced, and small in bulk. Gradually the volume of individual meals may be increased and the interval between them lengthened until only four are taken daily. Their composition should be bland at first, but over two or three months more dishes can be added until a virtually normal diet is being taken. Most patients who have undergone partial gastrectomy are eating normally two or three months after operation. There is no general indication for medicines, but in some instances a vitamin concentrate and iron may be advisable.

Threadworms

Q.—*Would you please tell me the dose and the method of administration of carbon tetrachloride followed by saline purgation for a child of 7 and her mother? Is this treatment for threadworms always successful, and, if not, how soon can it be repeated?*

A.—Carbon tetrachloride is highly toxic and possesses few advantages over the less toxic and almost as effective anthelmintic tetrachlorethylene, but it is doubtful if either treatment should be given unless the patient is in hospital. The oral dose advised for tetrachlorethylene is 3 ml. (in three 1-ml. soft gelatin capsules) for an adult, and 3 minims (0.18 ml.) per year of age for a child. Alcohol and all fats, including milk, should be withheld for two days previous to giving the drug, which should be administered before food is taken on the morning after a saline purge has been given. The patient should remain in bed throughout the treatment. In cases of failure treatment should not be repeated until three weeks have elapsed.

An alternative treatment is with hexylresorcinol orally combined with enemata. The dose is 1 g. for adults and for children over 10 years; below 10, for each year of age 0.1 g. The drug should be administered in hard gelatin capsules. If the oral dose is taken in the morning, a soap-sud enema should be given the same evening, to be followed by another enema of a 0.1% solution of hexylresorcinol crystals in water, which should be retained for fifteen minutes. The treatment of threadworms, particularly in children, has been fully investigated by Wright and his colleagues in America, and the results of their investigations have been published in a series of articles. After trying many lines of treatment they consider that the one yielding the best results with the minimum of risk is the administration of gentian violet. The method of administration and the preparation of the patient are fully described in a paper which appeared in the *Journal of the American Medical Association* (1940, **114**, 861). No known form of treatment is always successful.

Effect of Mandelic Acid

Q.—*Are any ill effects likely to result from taking mandelic acid over long periods?*

A.—No ill effects are to be expected from taking mandelic acid over long periods. Mandelic acid is a fatty acid which is excreted unchanged. However, when it is taken, it is usually given as ammonium mandelate or calcium mandelate, and in this form it produces an acid urine, which is necessary if it is to be effective bactericidally. The maintenance of an acid urine for long periods may be harmful in persons suffering from some degree of renal damage; this may be further aggravated by restriction of the fluid intake. To maintain full treatment with fluid restricted to 2 pints (1,136.5 ml.) and a urine of acidity *p*H 5.5 is often very depressing for the patient.

Green Staining of Hair

Q.—*It has been suggested that an impregnating varnish consisting of an oil-modified phenolic resin dissolved in white spirit might be the cause of the green staining of the hair which occurs in men with white hair who come into contact with it in a factory. As the discoloration is confined to the front of the hair, it is probably connected with perspiration. Could you give any information, with references, on pigmentation of the hair which would help in tracing the source of the trouble?*

A.—The inquirer does not give sufficient data to enable fair comment to be made. It would be helpful to have been told if copper is actually handled by the affected workers or is present in the shops as dust; if the staining washes out with soap and water; and the colour of the varnish. It seems unlikely that the varnish, unless it is actually green in colour and is carelessly handled by the workers, is the cause of the green pigmentation of the hair.

Copper has been known to cause green staining of the hair and perspiration. Flinn and Inouye (*J. biol. Chem.*, 1929, **84**, 107) refer to the statement in the literature that "copper dust, or alloys rich in copper, generally produce in workers green-stained hair, greenish deposits on the teeth, and a green tint to the perspiration which may persist even after a thorough bath, while the skin may be actually bronzed." Mallory (*Arch. intern. Med.*, 1926, **37**, 336) states that continued exposure to

copper, such as is experienced by workers in copper foundries, will cause haematochromatosis. I. J. Cunningham (*Biochem. J.*, 1931, **25**, 1273) remarks on the catalytic effect of copper on the oxidation of "dopa" (3:4-dihydroxyphenylalanine), which is the precursor of melanin, the pigment in hair. Copper and its effect on health is discussed in *Industrial Medicine*, 1947, **16**, 368. A detailed discussion on hair-colour change can be found in *J. Amer. med. Ass.*, 1943, **121**, 161.

Malignant Deposit in Pelvis

Q.—*For the last year a woman of 51 who had a carcinoma of the breast removed three years ago has been having backache, never localized, but most frequently in the lumbar region. X-ray examination reveals an osteoarthritis of the spine; there is also a "spot" in the pelvis which may indicate the presence of malignant deposits. A blood examination shows her alkaline phosphatase level to be 5 units per 100 ml.—this, I am told, does not support a diagnosis of malignancy. Would you please give your view?*

A.—Osseous metastases during the early phase of their development give rise to indefinite signs on radiological examination, and in such cases repeated radiography at monthly intervals is of value. Estimations of the alkaline phosphatase concentration in the blood are of limited value. It is true that in some cases of osseous metastases the figure is raised, but it may be normal, and conditions other than this may cause changes in the alkaline phosphatase level. This patient should be kept under careful observation and further radiological examinations of the pelvis carried out at intervals.

Blood Transfusion in CO Poisoning

Q.—*Has replacement blood transfusion ever been tried in cases of coal-gas poisoning? Six to eight pints (3.4 to 4.5 litres) would seem to be enough if the patient is in real danger.*

A.—Blood transfusion has been used in the treatment of carbon-monoxide poisoning. Special care must be exercised to ensure that the circulation is not overloaded, because such overloading would have serious, and very possibly fatal, effects on a heart already dilated and weakened by anoxia. The method adopted must therefore be one of replacement, as the question suggests, but the quantities mentioned are excessive. Blood transfusion should not be regarded as a routine requirement in cases of coal-gas poisoning. Most of the patients reaching hospital alive will have eliminated a considerable proportion of the carbon monoxide, and other lines of treatment, such as the administration of oxygen with carbon dioxide, will give satisfactory results in the majority of cases.

Allergy to Animal Fat

Q.—*Is it possible to desensitize a patient who is allergic to animal fats? He is unable to eat an average amount of animal fat without developing small pustules on his chin; this also occurs after shaving with soap containing such fat. He is not allergic to vegetable fats.*

A.—Desensitization to a food is of doubtful value and is rarely advisable. The best treatment is its complete avoidance, when the hypersensitivity is frequently outgrown. It is most unusual for a person to be allergic to all animal fats, nor are pustules a common manifestation of spontaneous allergy. More usually the sensitivity is to the products of individual species of animal.

Penile Herpes or Verrucae

Q.—*A young man aged 24, with no history or signs of specific venereal infection, has developed a chain of papilla-like processes about the size of a pin's head in the coronal sulcus. These bodies do not resemble venereal warts; there is no phimosis and no other evidence of balanitis. Applications of glacial acetic acid caused temporary "whitening" of these papillae, but they have not disappeared. What alternative treatment would you suggest? Is the condition progressive, and are any serious sequelae likely in the patient or his wife?*

A.—From the information given, the lesions appear to be either herpes or verrucae—probably the former. Unless they are giving rise to unpleasant symptoms, no treatment is indicated; should treatment be deemed advisable, keeping the parts dry and powdering with talcum are recommended. Such methods as circumcision, excision of the affected epithelium, or destruction with the electrocautery are unnecessarily drastic and are contraindicated. For warts such as are commonly seen in connexion with a chronic urethritis, podophyllin resin *B.P.* 25% or less in liquid paraffin is remarkably successful; the surrounding parts should be protected with a film of petroleum jelly and the podophyllin applied with a swab and allowed to dry; if necessary, a second application may be made after a few days.

The condition described is not likely to be progressive, though it may take a considerable time to clear up; nor is it likely to cause any serious sequelae in either the patient or his wife.

Transient Giddiness

Q.—*What are the causes and treatment of momentary transient vertigo? I have many patients—non-smokers, non-drinkers, with normal blood pressures, and aged 40 to 60—who complain of momentary giddiness after stooping, on looking up to the sky, or on rotating the head.*

A.—Probably some of these are not cases of true vertigo. Thus, momentary dizziness after stooping is often caused by a temporary cerebral anaemia due to poor vascular tone, and the subject should derive benefit from physical exercises, particularly for the abdominal muscles. The other cases are probably due to abnormal proprioceptive or ocular impulses. Thus rheumatic affections of the cervical joints and muscles may be a factor. In the ocular cases, or in those with true postural vertigo, phenobarbitone or other sedatives should help.

NOTES AND COMMENTS

Keloid.—Dr. F. PIERS (Nairobi) writes: A correspondent asked which was the best treatment for keloids ("Any Questions?" Feb. 26, p. 377). Your expert, in his reply, advised *x*-ray treatment and excision of the scar. With great respect I beg to disagree with him, especially as regards excision. Keloids invariably recur and assume a more unpleasant character after surgical interference. I have recently seen a young Greek woman from Abyssinia who had originally, a small keloid over the sternal region. This was twice excised by competent Italian surgeons, and each time the result has been a more extensive and unsightly recurrence of the keloid. The method of choice is, in my opinion, radium treatment: repeated surface applications with heavy filters (to exclude all but the harder beta radiation). A report of two cases in which this method gave excellent results was published by W. Lutz (*Dermatologica*, 1947, **94**, 315). The pictures accompanying the article supply convincing evidence of the value of this method.

Corrections

In the leading article on "Diphtheria Prophylactics," which was published in the *Journal* of April 23, p. 715, it was stated that the number of notified cases of diphtheria in 1947 was 3,941 and of deaths 198. These figures, however, relate to children under 15 only. The figures for the whole population, obtained from the quarterly returns (corrected notifications) issued by the Registrar-General, are 5,609 cases of diphtheria notified in 1947 and 244 deaths.

Dr. D. DAVIES writes: In my paper on "Acute Porphyria and Associated Electrolyte Changes" (May 14, p. 846) in the fourth paragraph "chronic porphyria" should have read "congenital porphyria."

Dr. JAMES OVERTON writes: In my recent article on the topical use of "vioform" in dermatology (May 14, p. 840), an error has been brought to my notice. In the first paragraph on p. 841, dealing with the pharmacology, "*In vitro* it inhibits *Staph. aureus* and *Bact. coli* in a dilution of 0.025%," should have read "0.025% 'vioform' in bouillon." This is another method of stating 0.025 parts per thousand.

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